

Software Agile Development

SCRUM - 101

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Project Manager & Solution Architect

CSM - Certified Scrum Master

CSD - Certified Scrum Developer



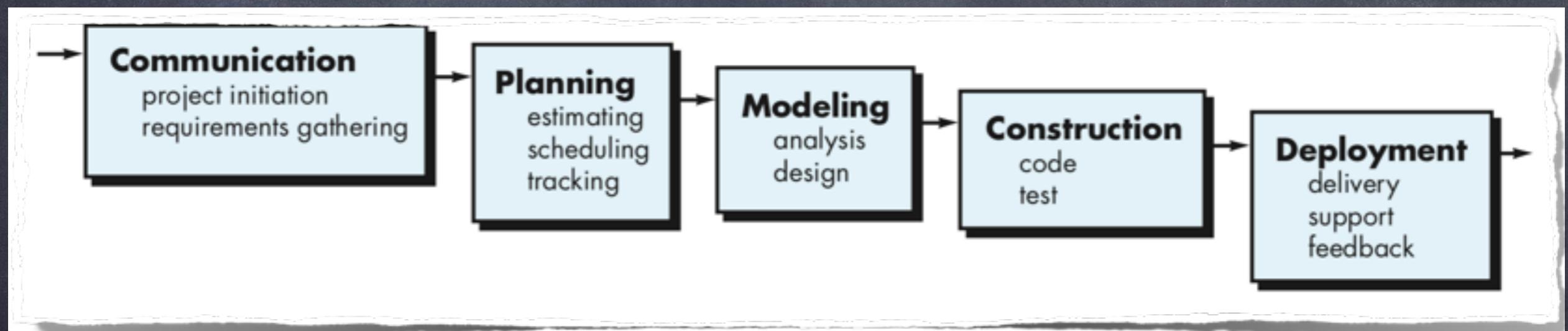
Pre-assessment

- What is a Process Model?
- What is Agile?
- What is SCRUM?

Process Model

- Process Models were proposed to bring order to the chaos of software development
- A process model provides a specific roadmap to software engineering work.
- It defines the flow of all activities, actions and tasks.

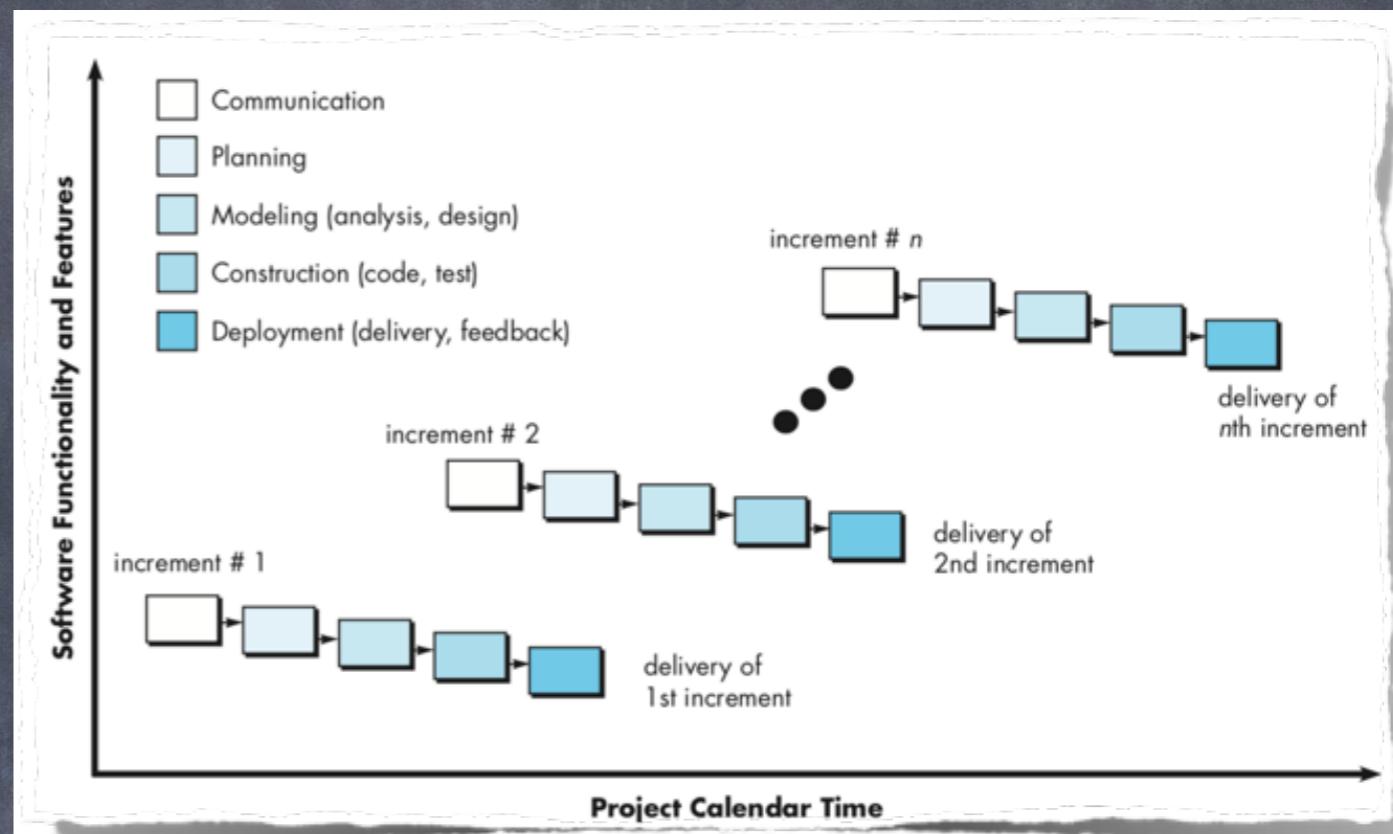
Waterfall Model



Evolutionary and Incremental Process Model

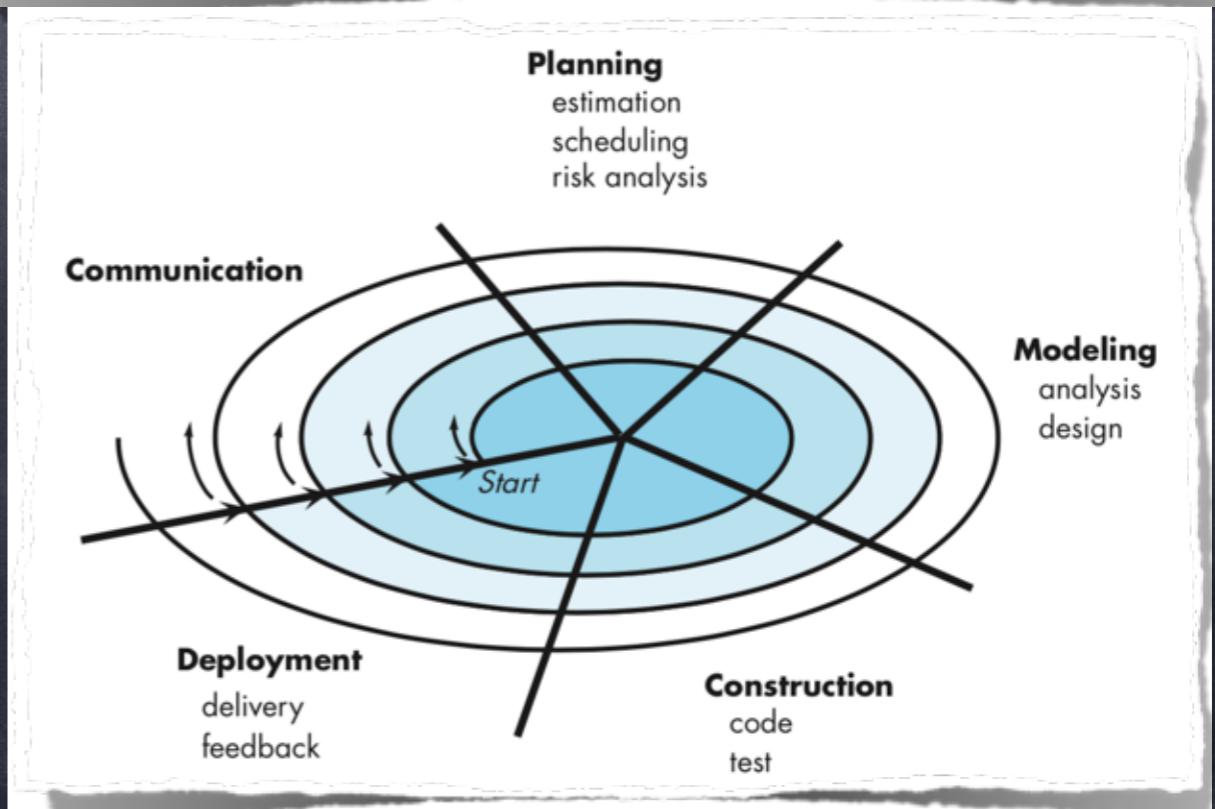
Incremental:

There are many situations in which initial software requirements are reasonably well defined.



Evolutionary:

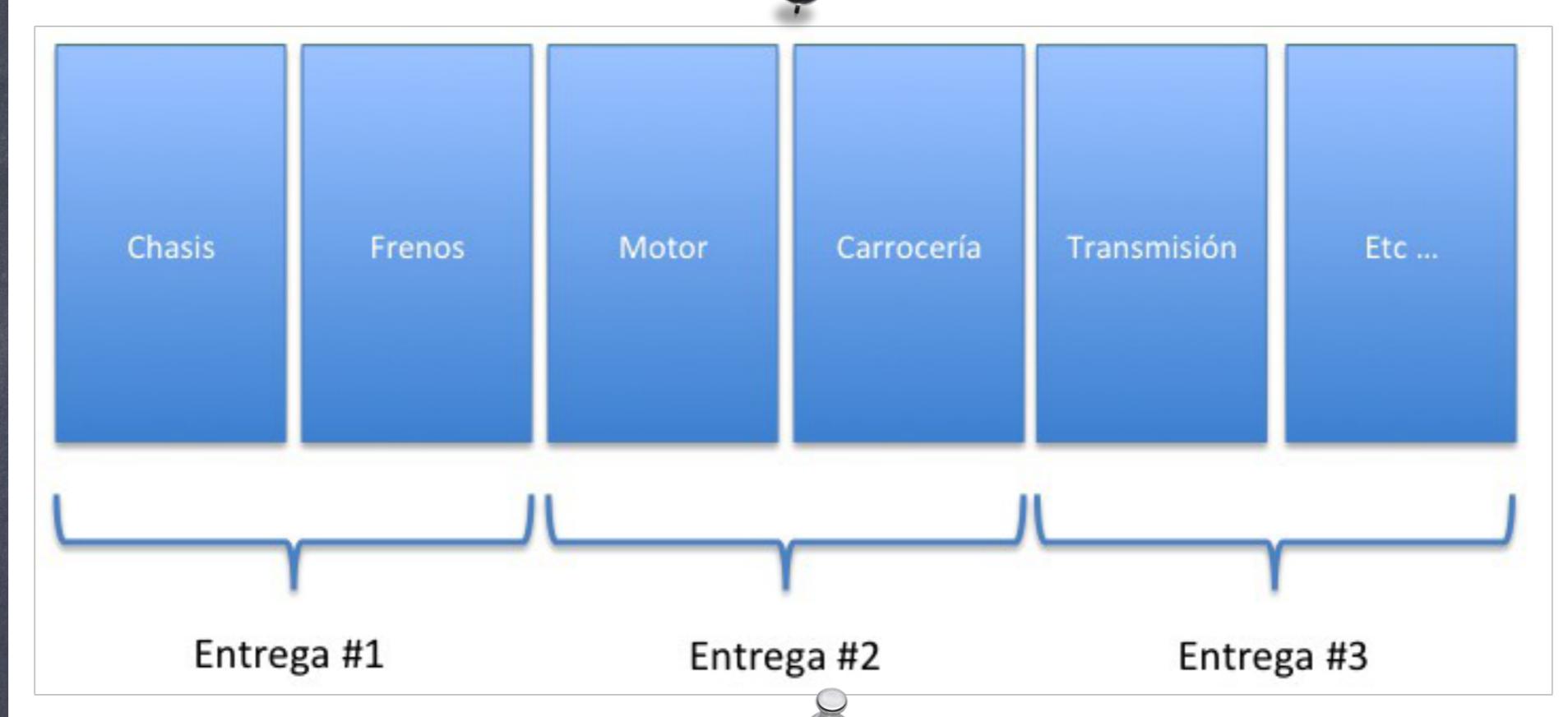
Software, like all complex systems, evolves over a period of time. Business and product requirements often change as development proceeds, making a straight line path to an end product unrealistic.



Iterative, Incremental approach



Iterative, Incremental approach



Incremental builds a bit at a time



Incrementing calls for a fully formed idea.

And, doing it on time requires dead accurate estimation.

1

2

3

4

5



Iterative builds a version



1



2



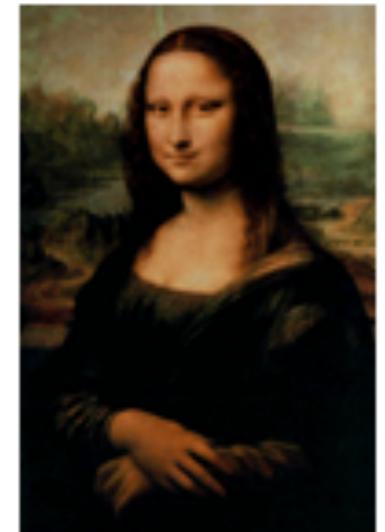
3



4



5



A more iterative allows you to move from vague idea to realization making course corrections as you go.

Agile Development Overview

- It's a conceptual framework to think about software development.
- Agile Methods emerged because traditional software development methods DID NOT work for complex projects
- Agile principles emphasize building working software versus spending a lot of time writing specifications.

Agile Manifesto

<http://agilemanifesto.org/>

- We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

Individuals and interactions over processes and tools
Working software over comprehensive documentation
Customer collaboration over contract negotiation
Responding to change over following a plan

- That is, while there is value in the items on the right, we value the items on the left more.

Kent Beck

Mike Beedle

Arie van Bennekum

Alistair Cockburn

Ward Cunningham

Martin Fowler

James Grenning

Jim Highsmith

Andrew Hunt

Ron Jeffries

Jon Kern

Brian Marick

Robert C. Martin

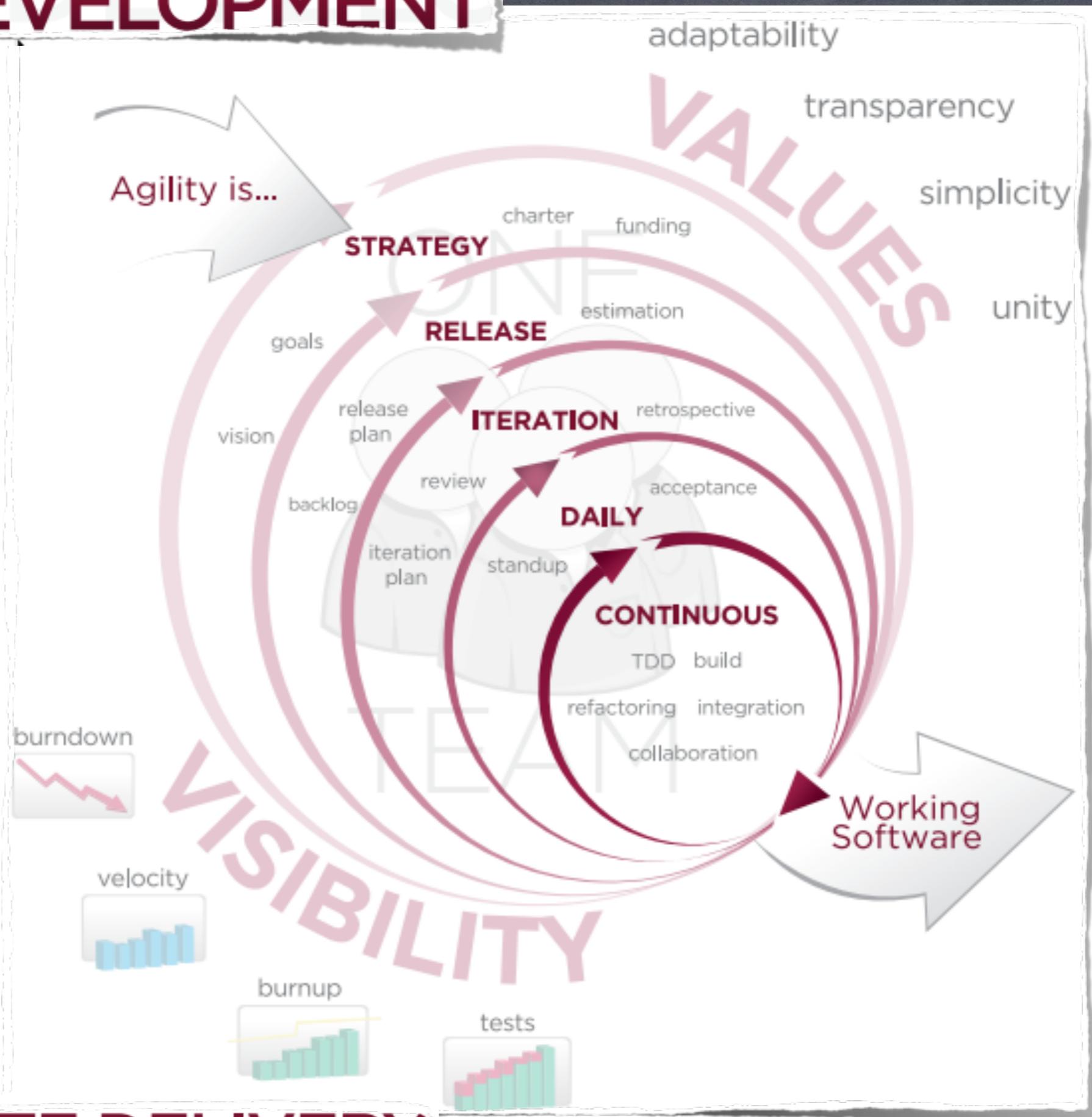
Steve Mellor

Ken Schwaber

Jeff Sutherland

Dave Thomas

AGILE DEVELOPMENT

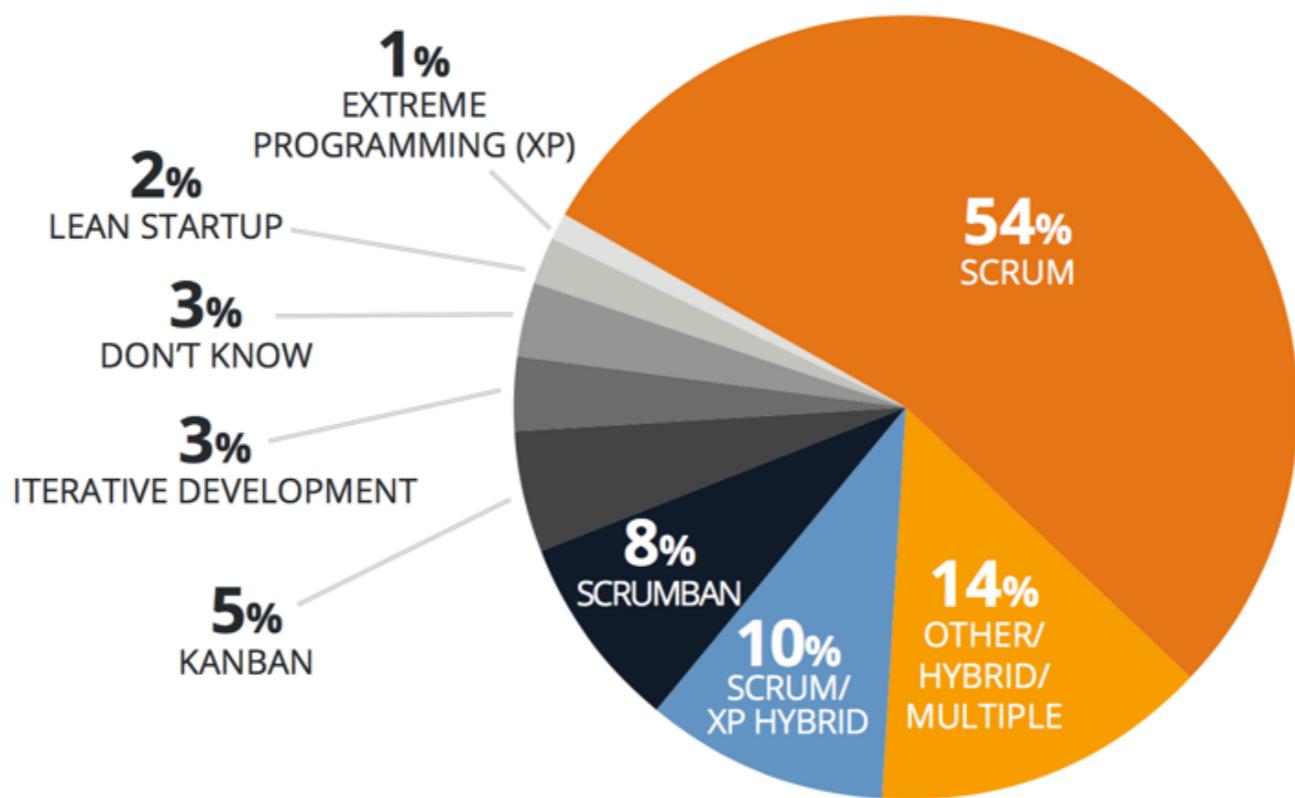


Agile Methodologies

- extreme Programming - XP
- Lean Software Development
- Kanban
- Scrum
- Scrumban

Agile Methodologies Used

Scrum and Scrum/XP Hybrid (64%) continue to be the most common agile methodologies used by respondents' organizations.



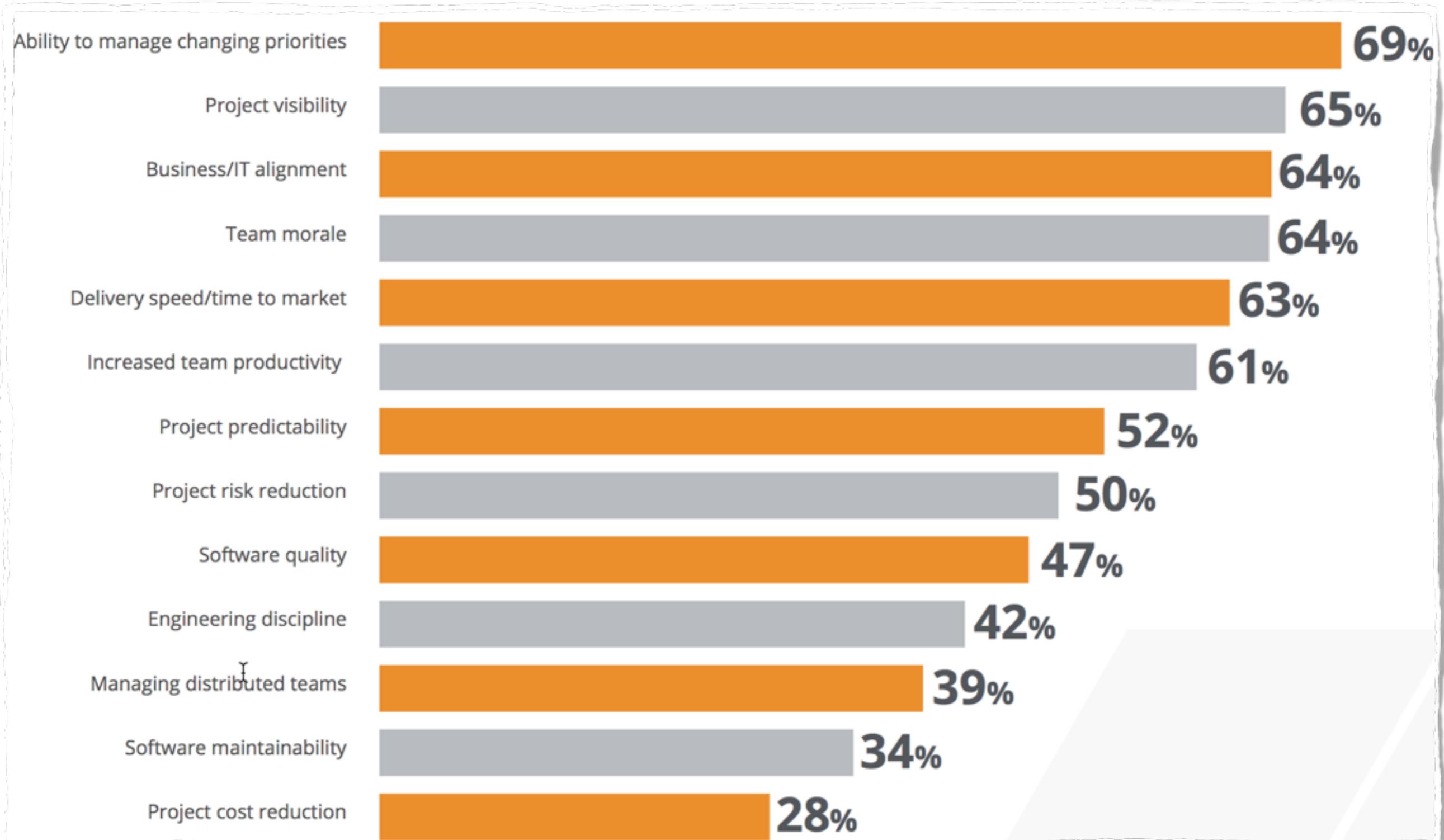
SCRUM Overview

- One of the agile software development methods
- An inspect-adapt revolutionary management technique that provides predictable results in measuring a Team
- It is not a complete process or a methodology, instead is a framework where you employ various processes and techniques

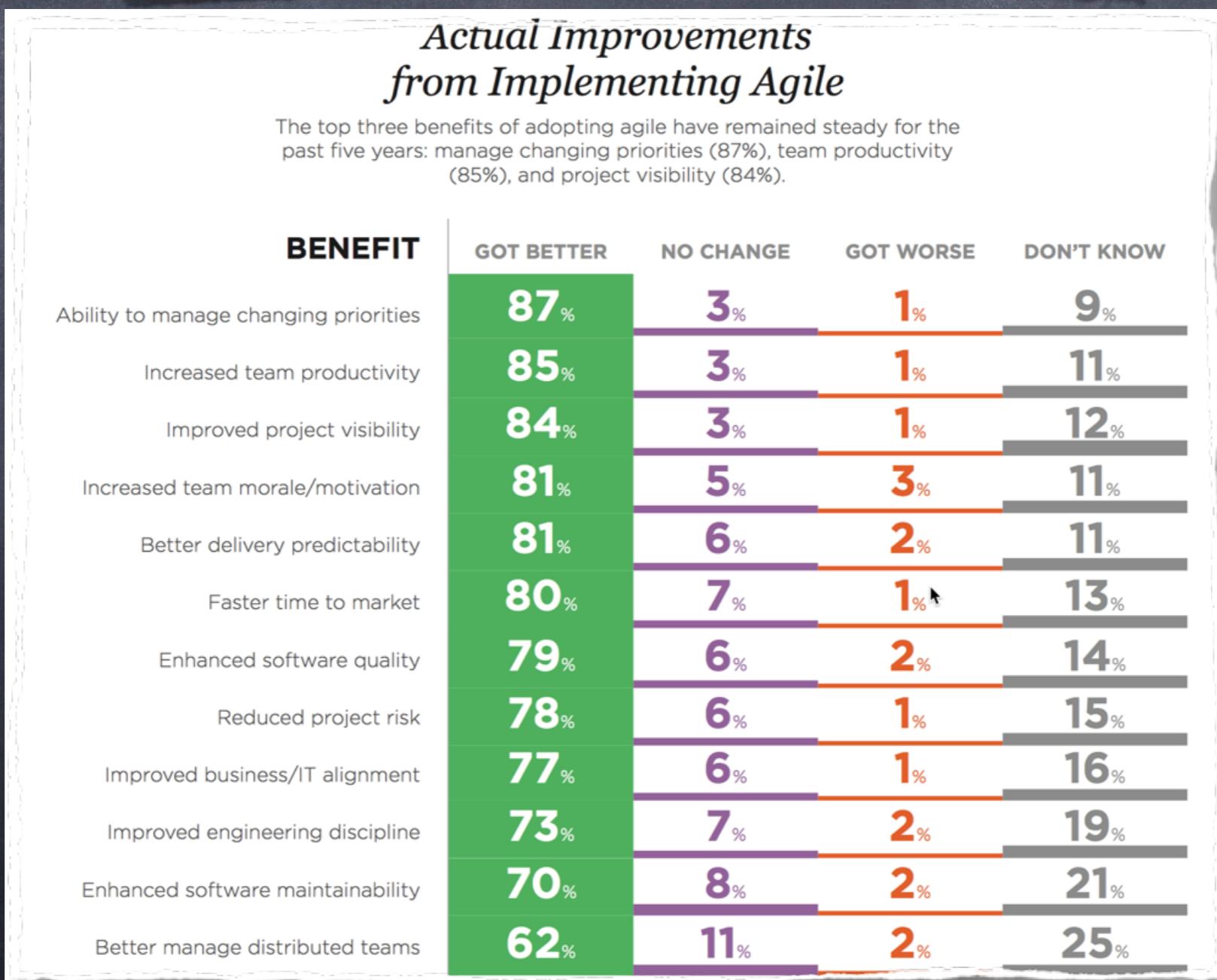
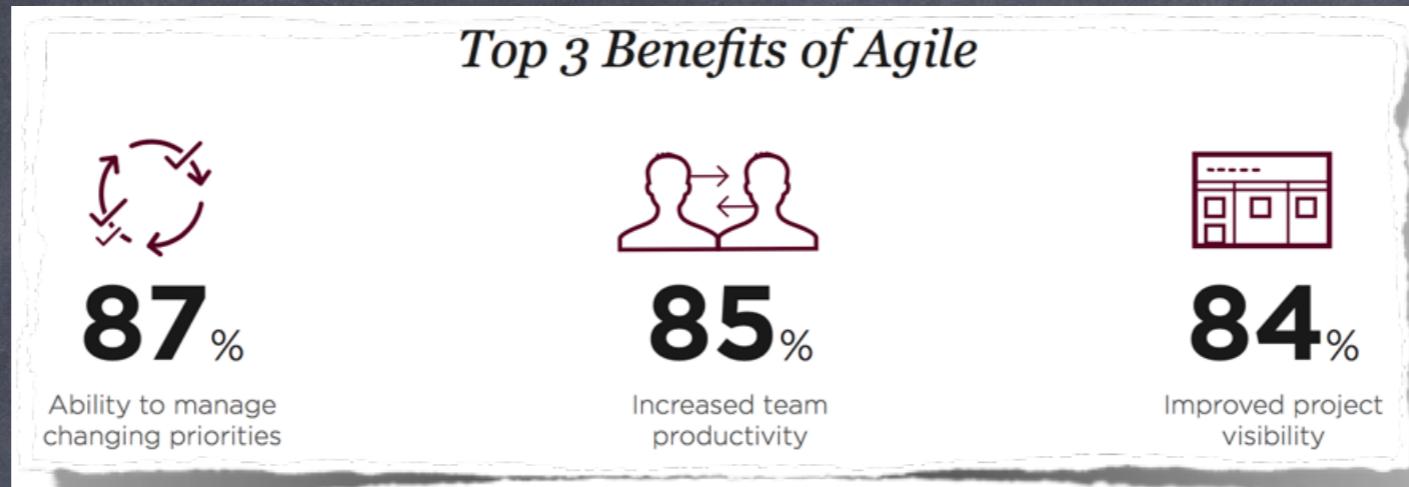
SCRUM Overview

- Scrum is grounded in empirical process control theory, employs an iterative, incremental approach to optimize predictability and control risk. Three pillars uphold every implementation of empirical process control:
 - Transparency
 - Inspection
 - Adaptation
- A major theme in Scrum is “inspect and adapt”

Some Agile Adoption Stats



Benefits of Agile



Scrum Patterns

• Team - Roles

- Scrum Master
- Product Owner
- Team

• Meetings - Time Boxes

- Release Planning Meeting
- Sprint Planning Meeting
- Daily Scrum
- Sprint Review
- Sprint Retrospective

• Artefacts

- Product Backlog
- Sprint Backlog
- Release Turndown
- Sprint Turndown

Scrum Framework

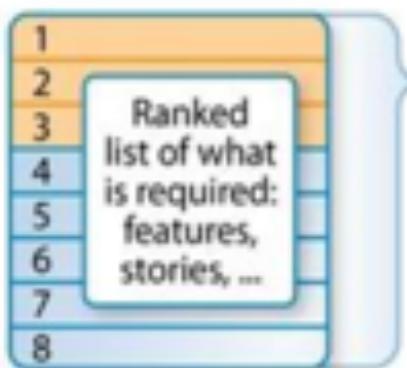
Inputs from Executives,
Team, Stakeholders,
Customers, Users



Product Owner



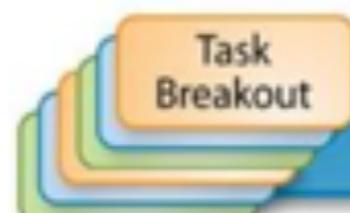
The Team



Product Backlog

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

Sprint Planning Meeting



Sprint Backlog



Sprint end date and team deliverable do not change



Burndown/up Charts



Scrum Master



Sprint Review

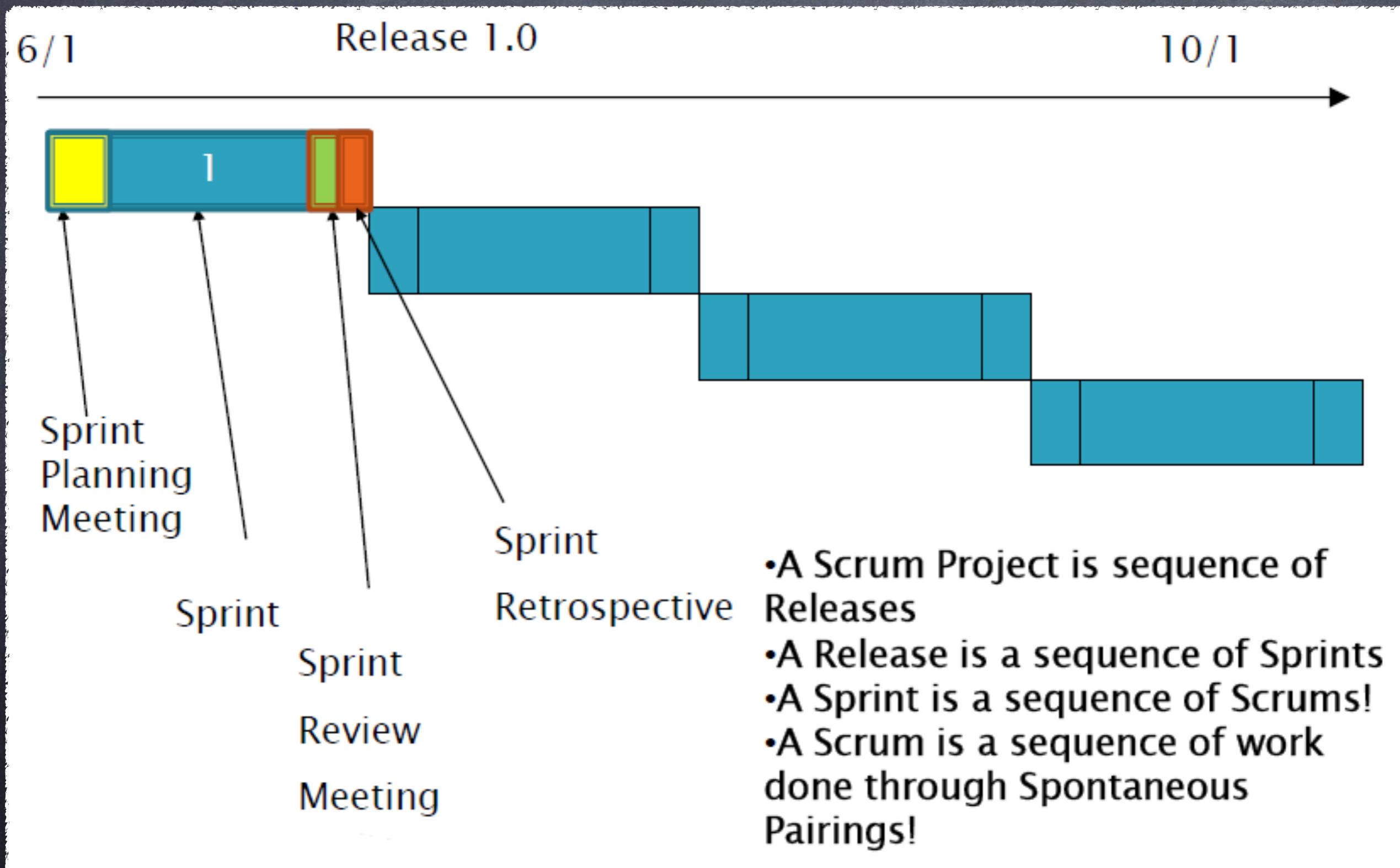


Finished Work



Sprint Retrospective

Time boxes: Release, Sprint, Day



Roles - Product Owner

- The Product Owner is responsible for maximizing return on investment (ROI) by:
 - Identifying product features
 - Translating features into a prioritized list
 - Deciding which should be at the top of the list for the next Sprint,
 - Continually re-prioritizing and refining the product backlog.



Roles – The TEAM

- The TEAM builds the product that the Product Owner indicates: the application or website,
- The TEAM in Scrum:
 - Is “cross-functional”
 - Includes all the expertise necessary to deliver the potentially shippable product in each Sprint
 - It is “self-organizing”
 - Decides what to commit to, and how best to accomplish that commitment.



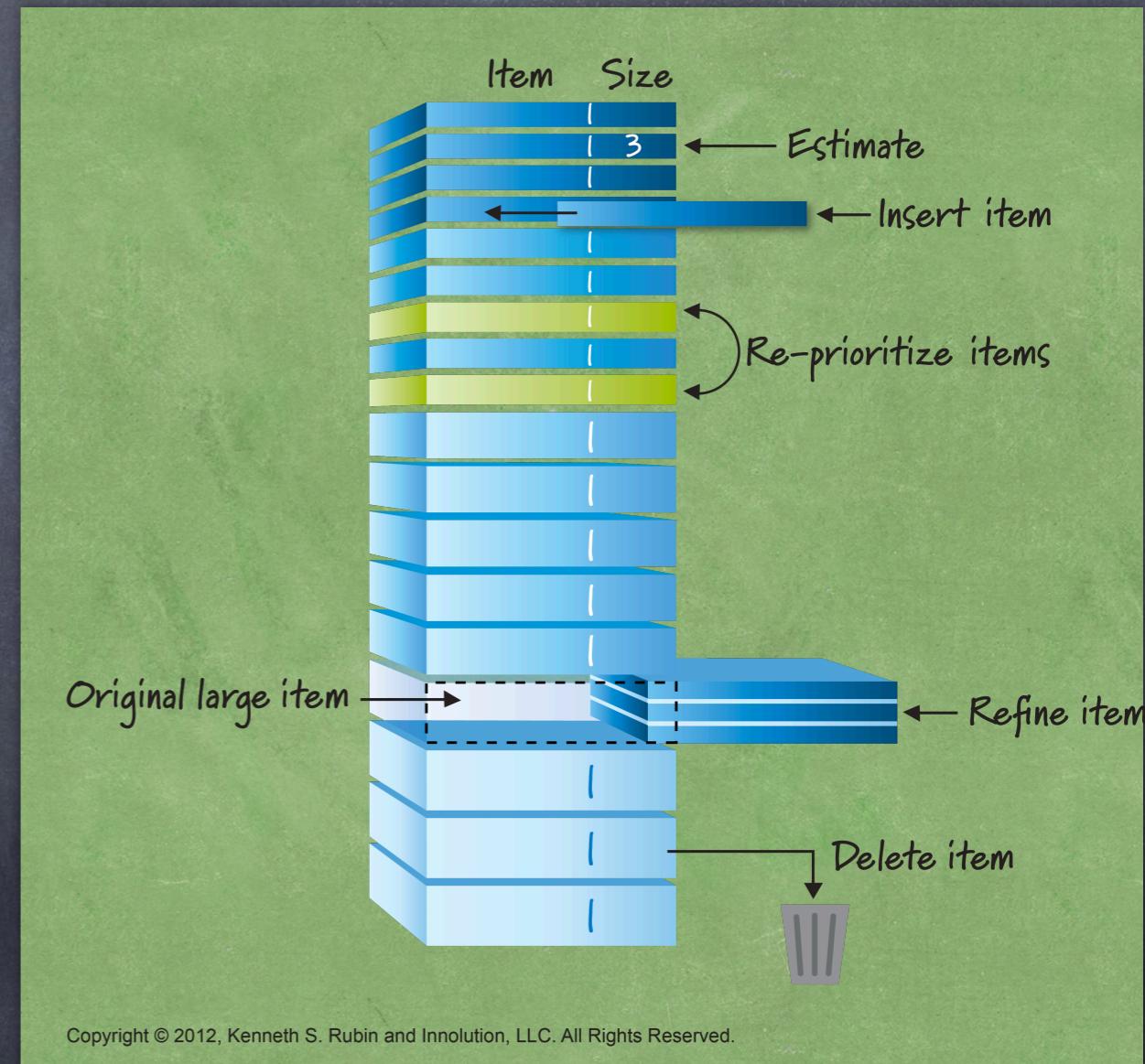
Roles - SCRUM Master

- The Scrum Master helps the team to learn and apply Scrum to achieve business value.
- The Scrum Master:
 - Help the Team and Product Owner be successful.
 - It is not the manager of the Team or a project manager; instead, the Scrum Master serves the team
 - Educates and guides the Product Owner and the Team in the skillful use of Scrum.
 - Makes sure everyone understands and follows the practices of Scrum.



Artifacts – Product Backlog

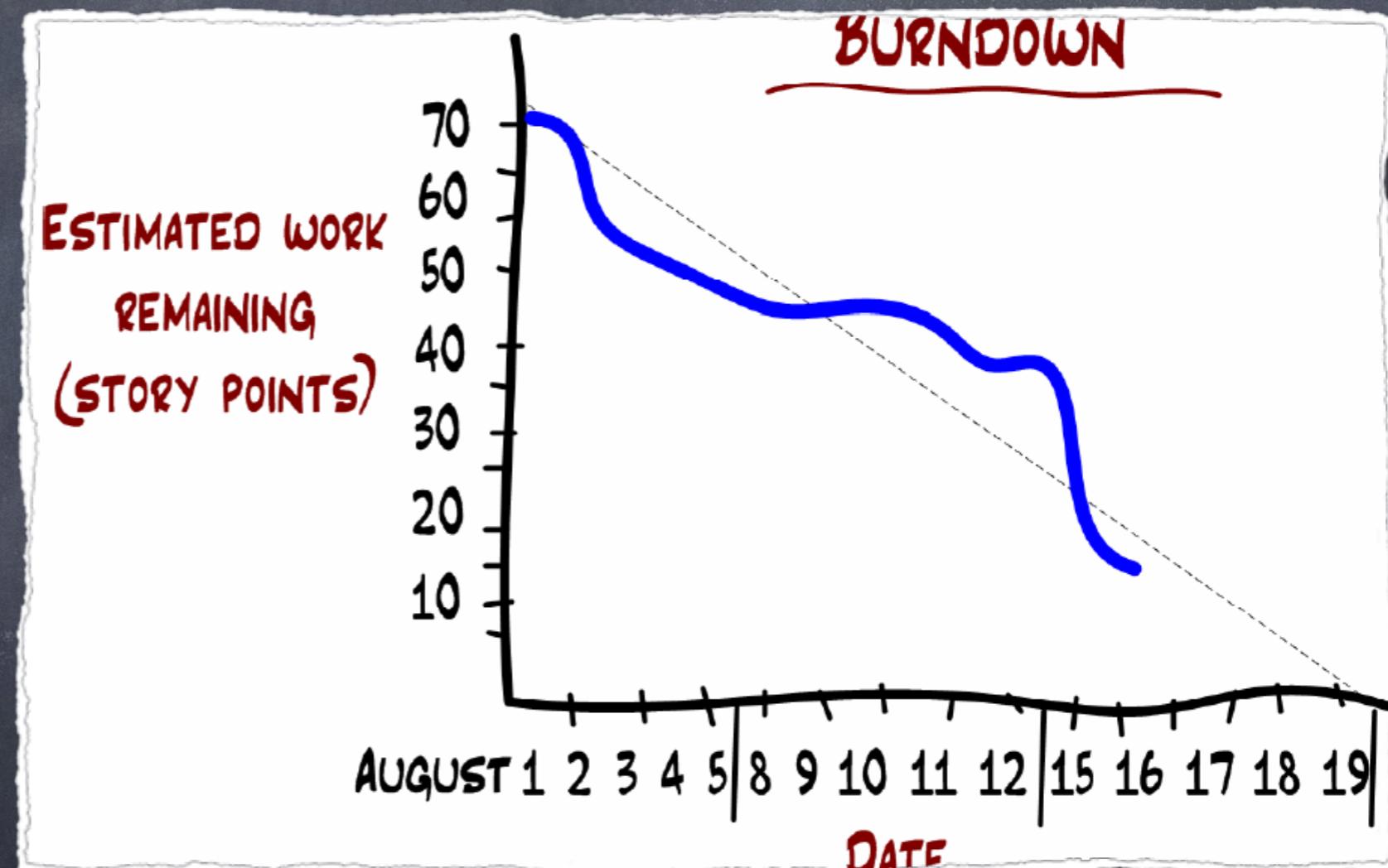
- The Product Backlog is a refined and prioritized list of features. Exists and evolves over the lifetime of the product.
- The Sprint Backlog is the prioritized list of features to implement in a Sprint.
- It is the product road map.



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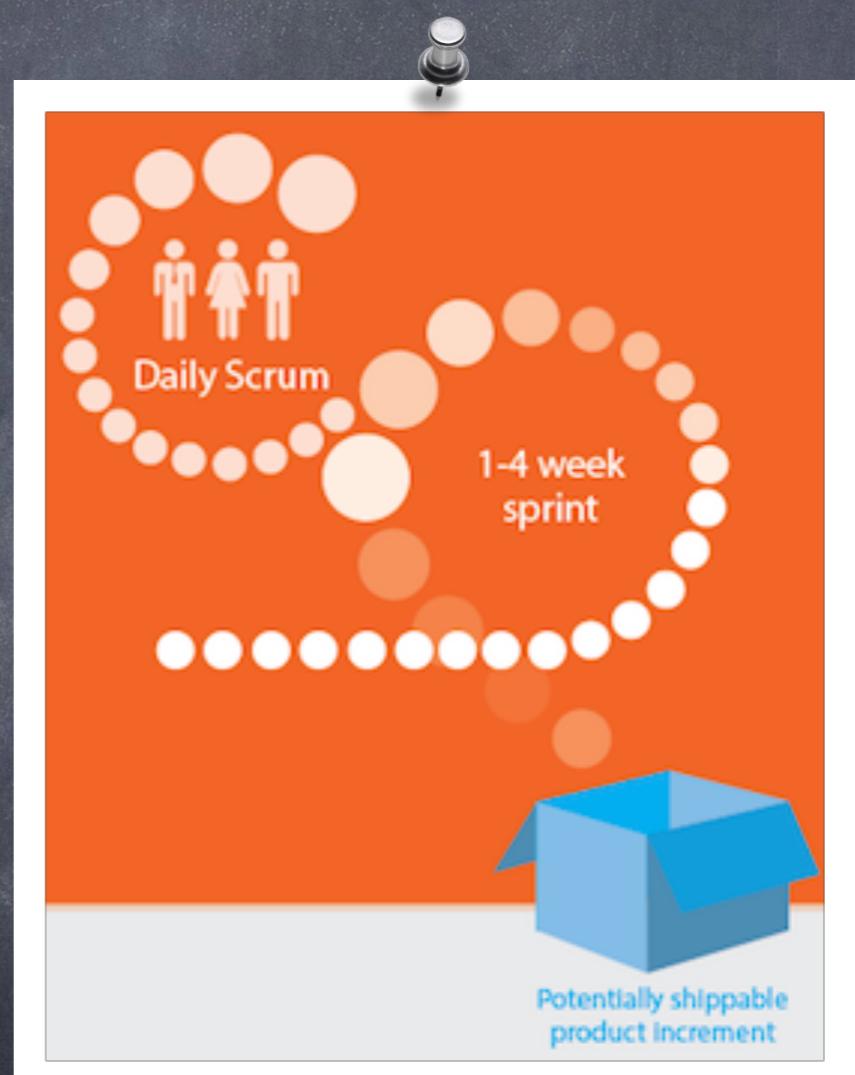
Artifacts – Burndown

- This graph shows an estimate of how much work remains until the Team's tasks are finished.
- Every day, the Team members update their estimate of the amount of work (time) remaining to complete their current task in the Sprint Backlog



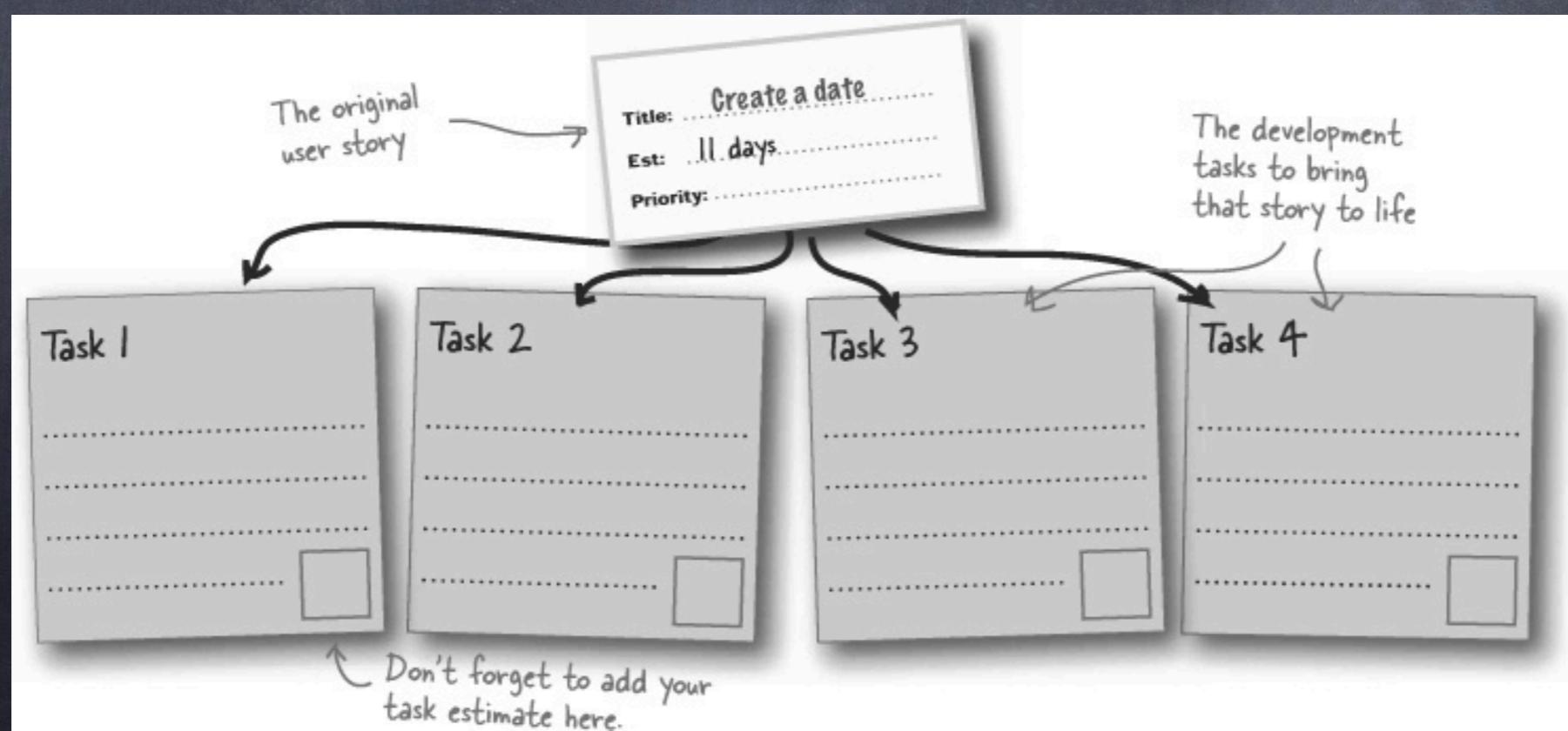
The Sprint

- At the beginning of the Sprint:
 - The team pulls a set of items from the top of the Product Backlog to create a Sprint Backlog
 - Then decides how to accomplish / implement those items during the next sprint.
- During the Sprint:
 - The team meet each day in the Daily Scrum, to inform progress and issues.
 - The Scrum Master keeps the team focused in its goal and removes impediments.
- At the end of the Sprint:
 - The work should be potentially shippable, ready for the customer or show to a stakeholder.
 - Review of the product and retrospective of the team's work process, relationships and tools.



Meetings: Sprint Planning

- The Sprint Planning Meeting takes place at the beginning of each Sprint.
- Part I: The Product Owner and Team review the high-priority items in the Product Backlog; the Definition of Done (DONE) is established.
- Part II: The team focuses on detailed task planning for how to implement the items.

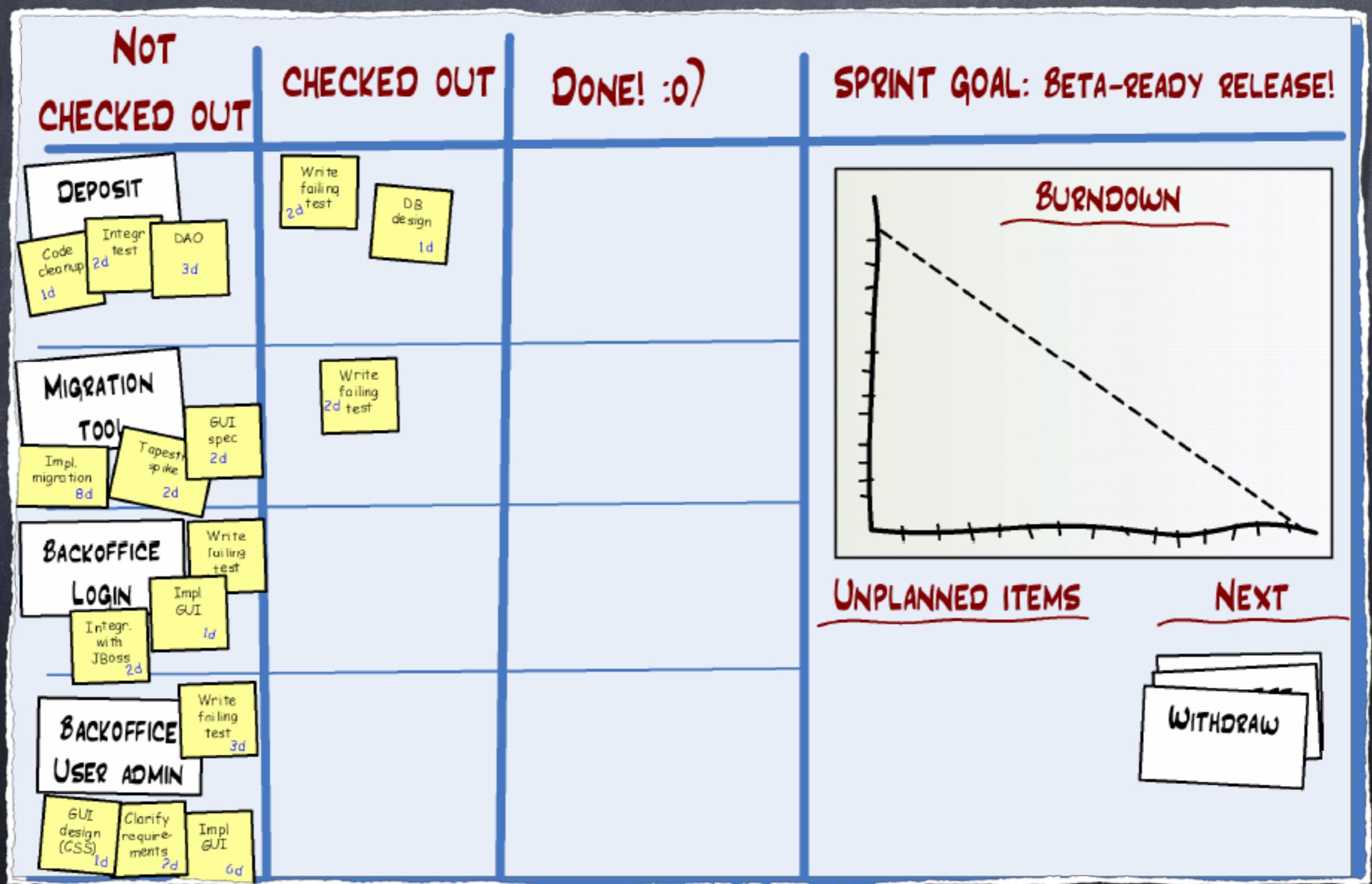


Meetings: Daily Scrum

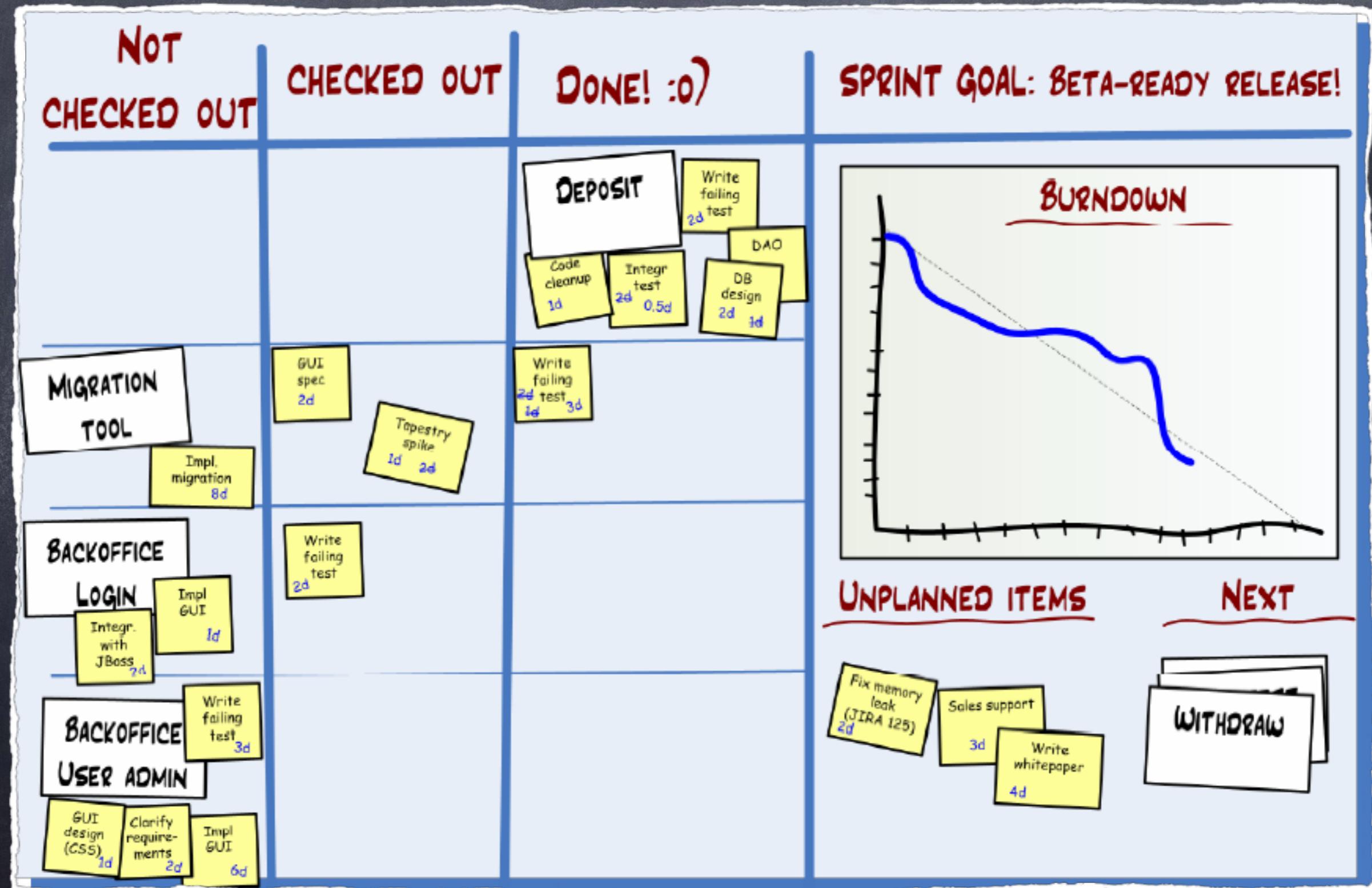
- The Daily Scrum happens every day.
- Everyone on the Team attends. It is the Team's opportunity to synchronise their work and report to each other on obstacles.
- In the Daily Scrum, one by one, each member of the Team reports three things to the other members of the Team:
 - (1) What they were able to get done since the last meeting
 - (2) what they are planning to finish by the next meeting;
 - (3) Are there any blocks or impediments.



Daily Scrum - Task Board



Daily Scrum - Task Board



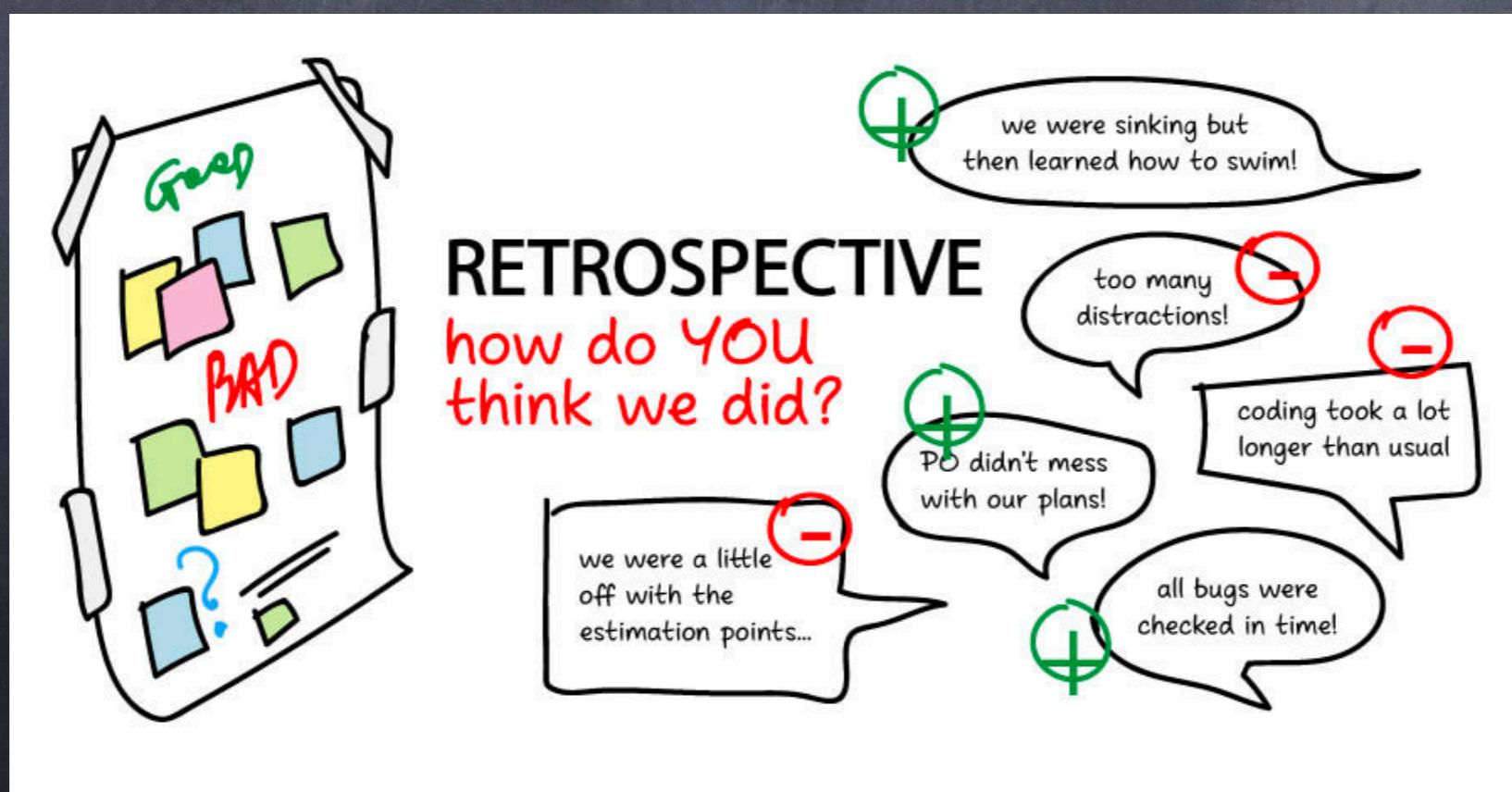
Meetings: Sprint Review

- The Sprint Review happens after the Sprint ends, where the Team and the Product Owner review the Sprint.
- This is often mislabeled the “demo”.
- The team demonstrates or discusses about Product Backlog Items that are not ‘done’ according to the “Definition of Done.”



Meetings: Sprint Retrospective

- The Sprint Retrospective involves inspect and adapt regarding the process.
- It's an opportunity for the Team to discuss what's working and what's not working, and agree on changes to try.



Agile Engineering Practices

• Requirements

Elaboration

Management:

• User Stories

Evolution

• User Story Mapping

• Continuous Integration

• Layered Testing

• Unit

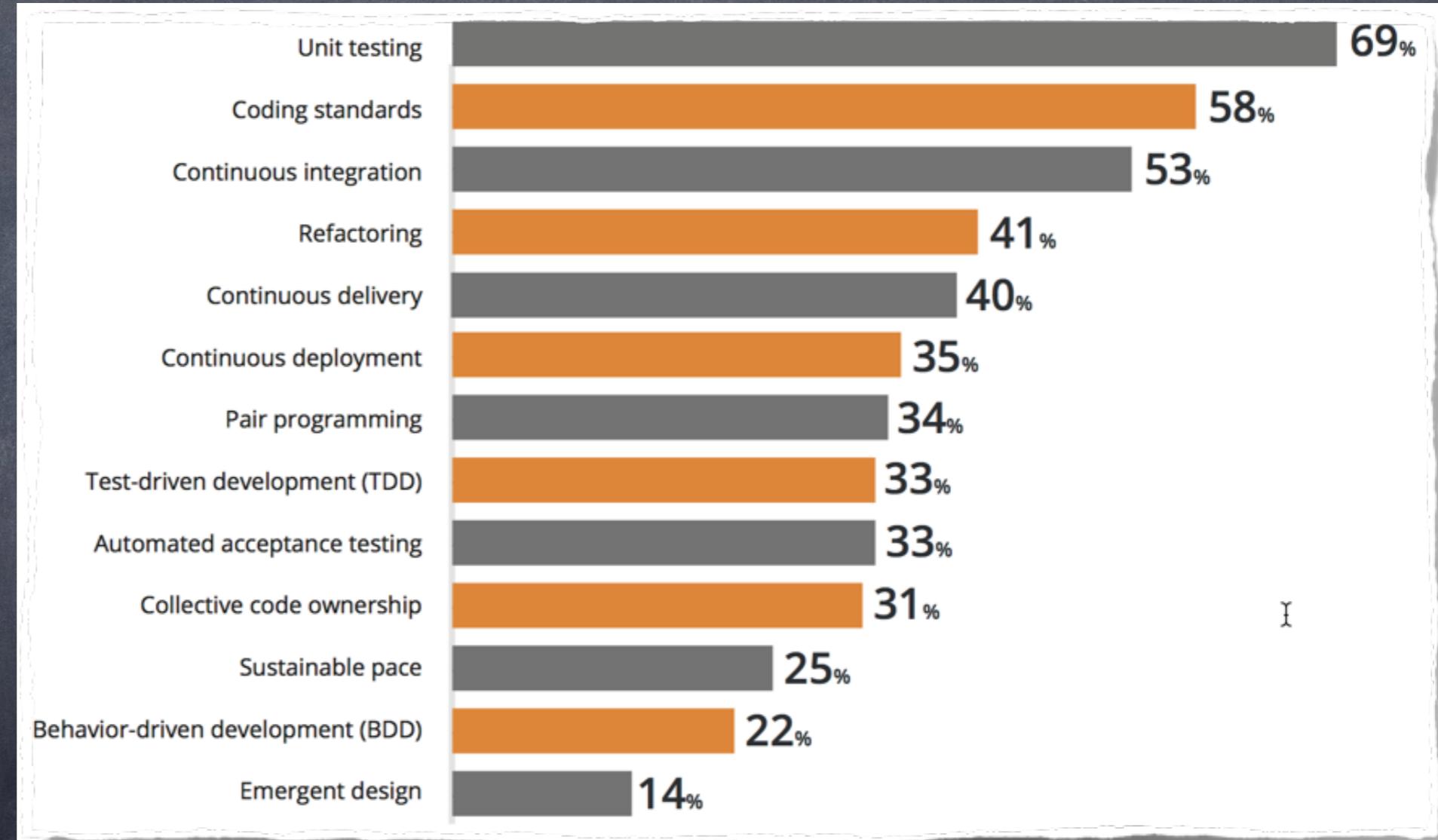
• Regression

• System

• Acceptance

• Test Driven Development - TDD

• Acceptance Test Driven Development - ATDD



Use of Agile Management Tools

