

THE **100**

Building Blocks for
Business Leadership

D25-2

Agile and Scrum — Introduction

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How to Use this Download

- This download is an overview of a discussion Intertech has with clients on Agile/Scrum
- This download has an overview of Agile, an overview of Scrum, a comparison of Agile to a traditional waterfall approach to project management, and Agile and Scrum best practices
- If you have questions or you're looking for help to implement Agile and Scrum, please let me know

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Overview

- Agile Overview
- Scrum Overview
- Scrum and Waterfall Comparison
- Scrum Best Practices

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Agile Manifesto

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 (**in red**), we value the items on the left more.

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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 – 12 Principles

1. Highest priority is to satisfy the customer
2. Welcome changing requirements
3. Deliver working software frequently
4. Business people and developers work together
5. Build projects around motivated individuals
6. Prefer face-to-face communication
7. Working software is primary measure of progress
8. Promote sustainable pace
9. Continuous attention to technical excellence and good design
10. Simplicity is essential
11. Self-organizing teams
12. The team reflects and adapts frequently

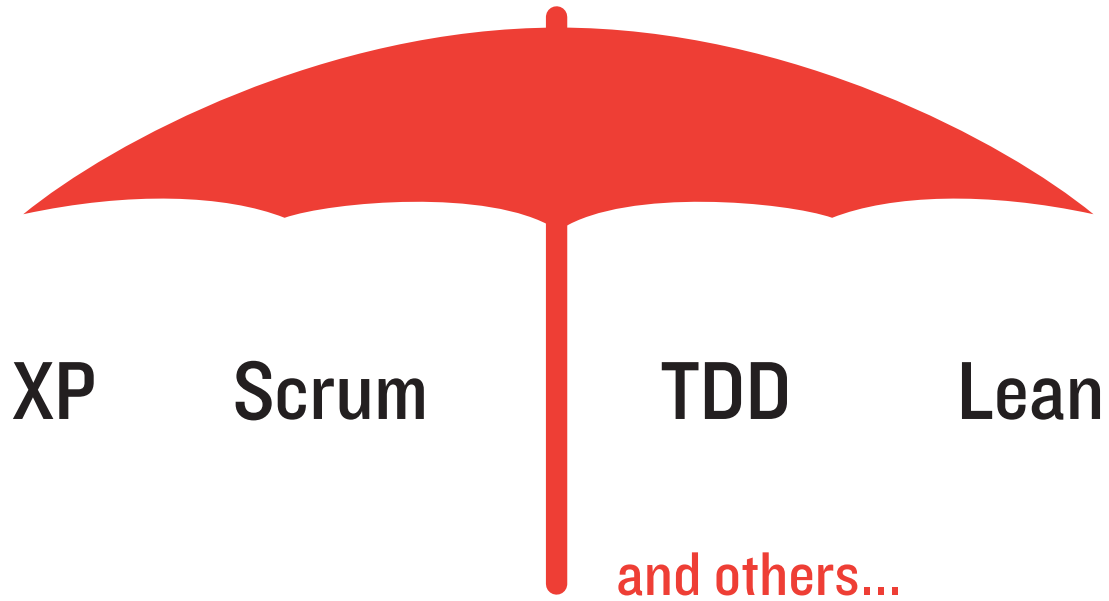
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Agile – Lightweight Methodologies



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Scrum



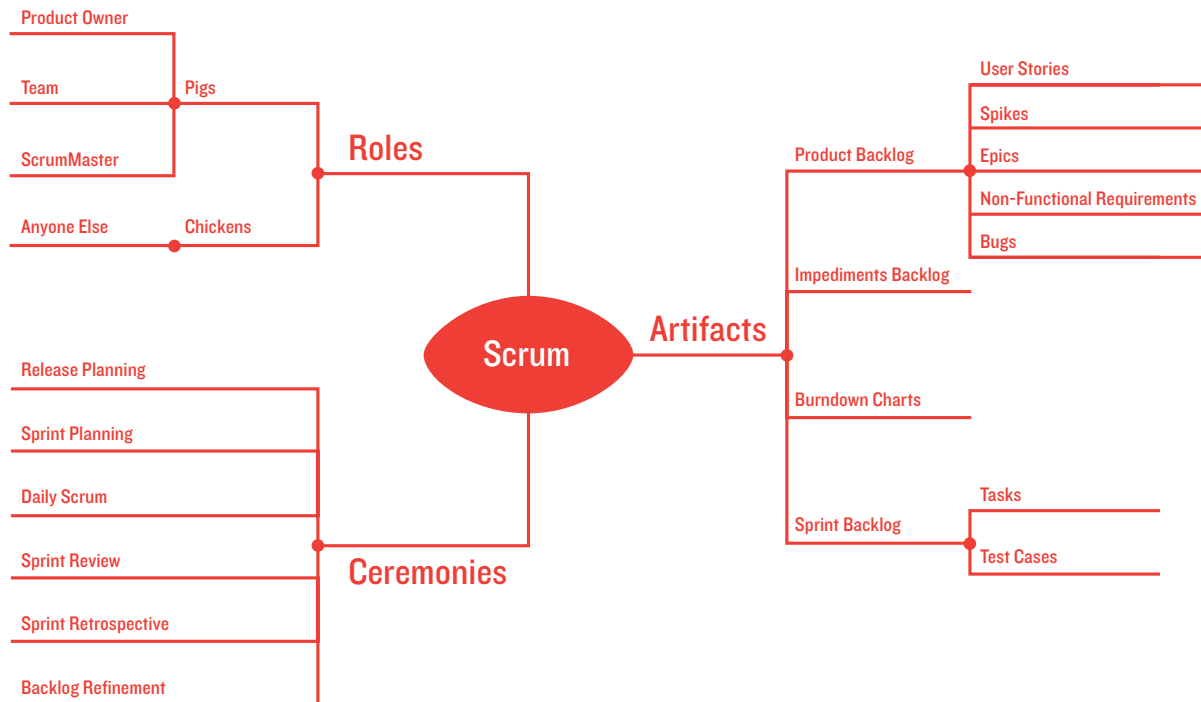
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Scrum



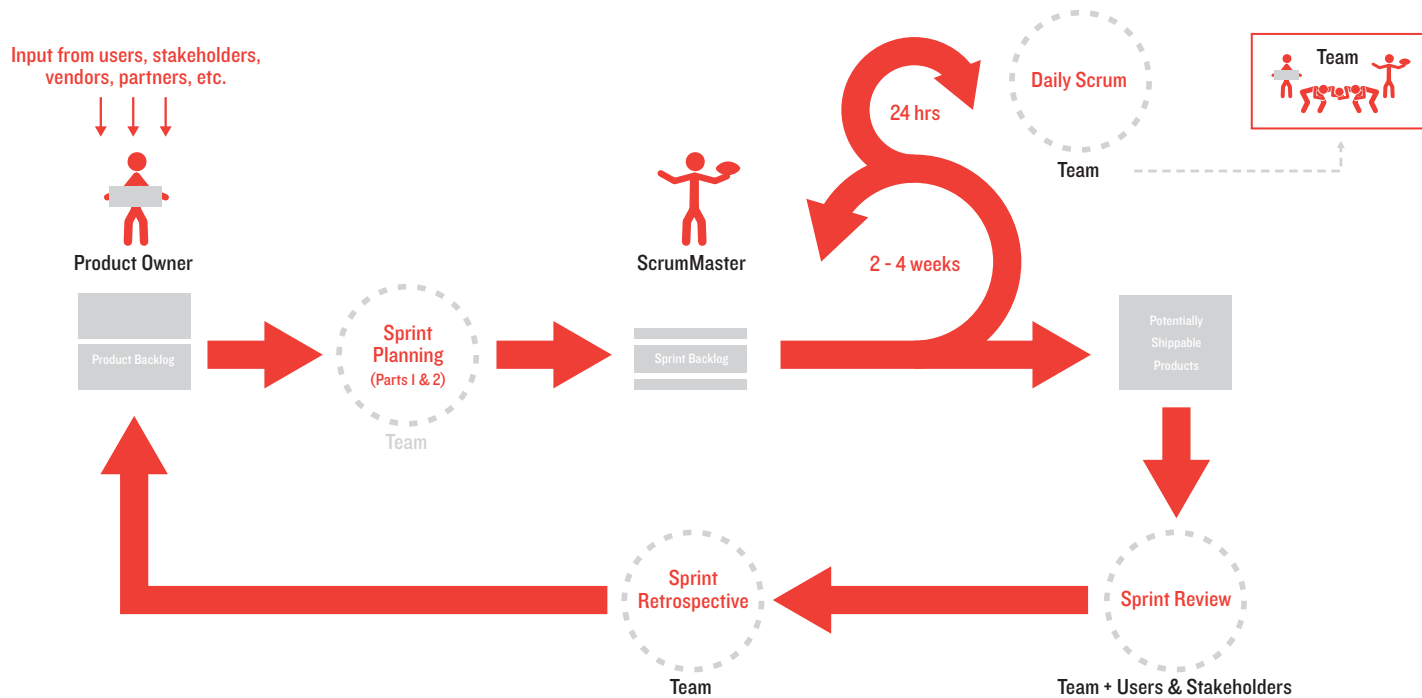
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Scrum Process



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Scrum Basics

- Methodology / management framework
- Practices and rules that support empirical process control
 - ✓ **Transparency, Inspection, Adaptation**
- Self-organizing teams
- Expect team members to trust / be responsible to one another
- Heavy on communication
- Process-Oriented
- Provides structure for roles, ceremonies/meetings, and artifacts
 - ✓ **Adapt and hybridize your rules, artifacts, and processes within the overall Scrum structure**

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Scrum Basics - Definitions

Sprint

- Activities are time-boxed to a Sprint
- Usually 2-4 weeks each
- Results in demonstrable / potentially shippable product

Done, Done, Done

- 1st Done: Development complete – approved by the developers
- 2nd Done: Testing complete – approved by the testers
- 3rd Done: Acceptance Criteria met – approved by the Product Owner

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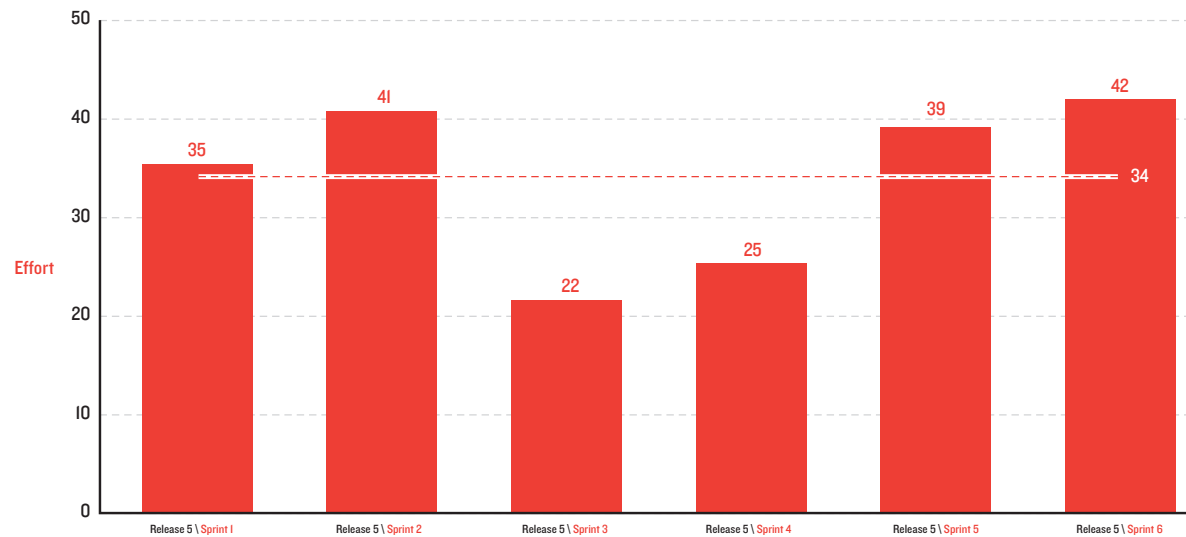




Scrum Basics - Definitions

Velocity

- Measure of a Team's ability to deliver in a Sprint
- Calculated by average Effort completed through all Sprints



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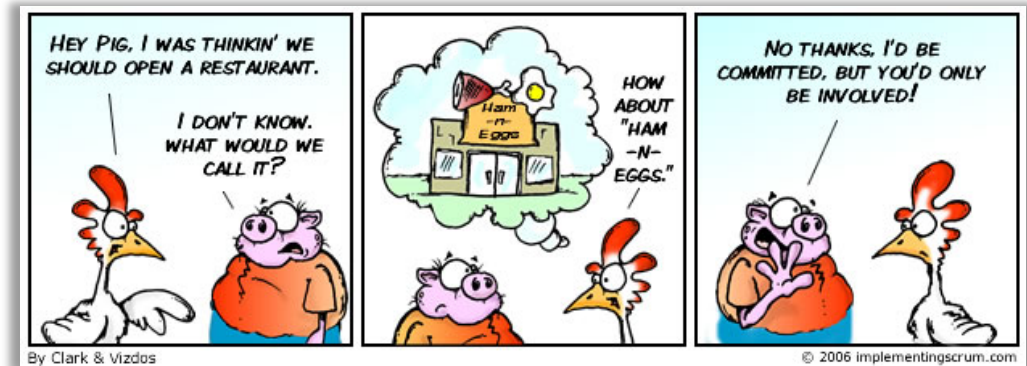
Scrum Roles

“Committed” – Pigs

- Product Owner
- The Team
- ScrumMaster

“Involved” – Chickens

- Stakeholders
- Customers / Users
- Vendors
- Managers
- Legislators
- Committees



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Scrum Roles – Product Owner



Responsible For...

- Activities are time-boxed to a Sprint
- Ensuring product success
- Establishing and achieving product vision
- Creating and maintaining Product Backlog
 - ✓ Authoring and prioritizing user stories
- Obtaining answers to product requirements questions

Considers...

- Stakeholder interests (“voice of the customer”)

Decides...

- Activities are time-boxed to a Sprint
- Sprint acceptance/rejection, or product acceptance/rejection
- Readiness to ship product
- Feasibility to continue developing product

Not Allowed To.....

- Be the ScrumMaster

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Scrum Roles – Team

Responsible For...

- Self-organizing and self-managing
- Negotiating commitments with Product Owner
- Collaborating with anyone necessary to get the job done
- Delivering the product

Considers...

- Stakeholder interests
- Commitments made to Product Owner

Decides...

- Implementation details

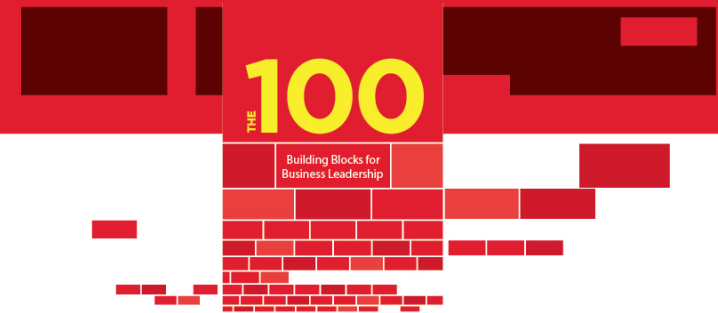
Not Allowed To.....

- Be the Product Owner

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Scrum Roles – ScrumMaster



Responsible For...

- Activities are time-boxed to a Sprint
- Facilitating and enforcing the Scrum process
 - ✓ Time-boxes, rules, etc.
- Helping the Team
 - ✓ Helping to remove barriers
 - ✓ Shielding the team
- Capturing empirical data

Considers...

- Stakeholder interests
- Commitments made to Product Owner

Decides...

- An environment that is conducive to the team and process
- Implementation details

Not Allowed To.....

- Be the Product Owner

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Scrum Artifacts

- Product Backlog
- Sprint Backlog
- Product Backlog Item
- Sprint Backlog Item
- Release Burndown
- Sprint Burndown

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Scrum Artifacts – Product Backlog

Records a prioritized list of everything that might be needed in the product (i.e., the requirements)

Responsible Party...

- Product Owner

Characteristics...

- Never complete – it exists as long as the product exists
- Includes features, bugs, R&D, etc.
- Contains Product Backlog Items
- Sorted in priority order
- Lower priority items contain less detail

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Scrum Artifacts – Sprint Backlog

Records a list of tasks and test cases to complete a set of Product Backlog items, thereby resulting in a “done” increment

Responsible Party...

- Team

Characteristics...

- Complete / empty when the Sprint is finished
- Contains Sprint Backlog Items
- Updated daily at a minimum
 - ✓ Tasks not started
 - ✓ Tasks in progress
 - ✓ Tasks completed
- Feeds the Sprint Burndown

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Scrum Artifacts – Product Backlog Item (PBI)

Specifies a requirement for the product

Responsible Party...

- Product Owner

Characteristics...

- User Stories
- Epics (i.e., large user stories, or groups of stories)
- Non-functional or technical requirements
- Spikes
- Bugs

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Scrum Artifacts – PBI's

User Story

- Describes something of business value in 1 sentence
- Typically authored by Product Owner
- As a **<type of user>** I want to **<some goal>** so that **<some reason>**
- Also includes Acceptance Criteria, Priority, and Effort

Characteristics...

- Investigative User Story – need to learn more, report findings, POC
- R&D, tool evaluation, or prototyping
- Bug investigation
- Process improvement

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Scrum Artifacts – Sprint Backlog Item

Specifies a task or test case for a Sprint

Responsible Party...

- Team

Characteristics...

- Effort usually = 2 days or less
- Tasks include anything in the spectrum for software engineering
 - ✓ Installation & configuration
 - ✓ Infrastructure
 - ✓ Coding
 - ✓ Documentation
 - ✓ Testing
 - ✓ Training
 - ✓ Etc.

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Scrum Artifacts – Release Burndown

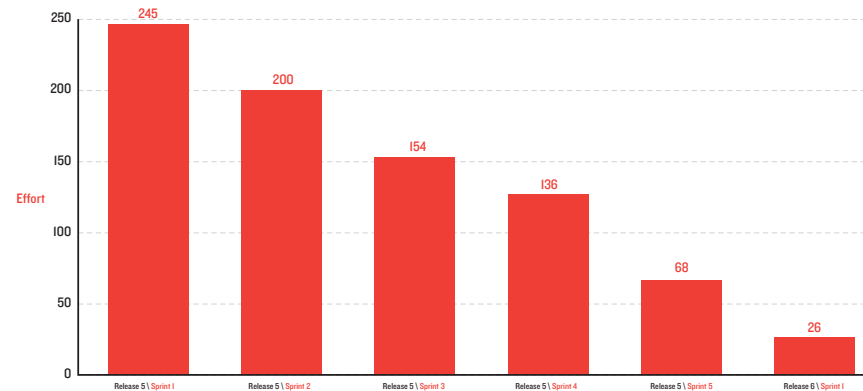
Measures remaining Product Backlog across the time of a release plan

Responsible Party...

- Product Owner

Characteristics...

- Graph with an optional trend line
- Complete when all Sprints are complete



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Scrum Artifacts – Sprint Burndown

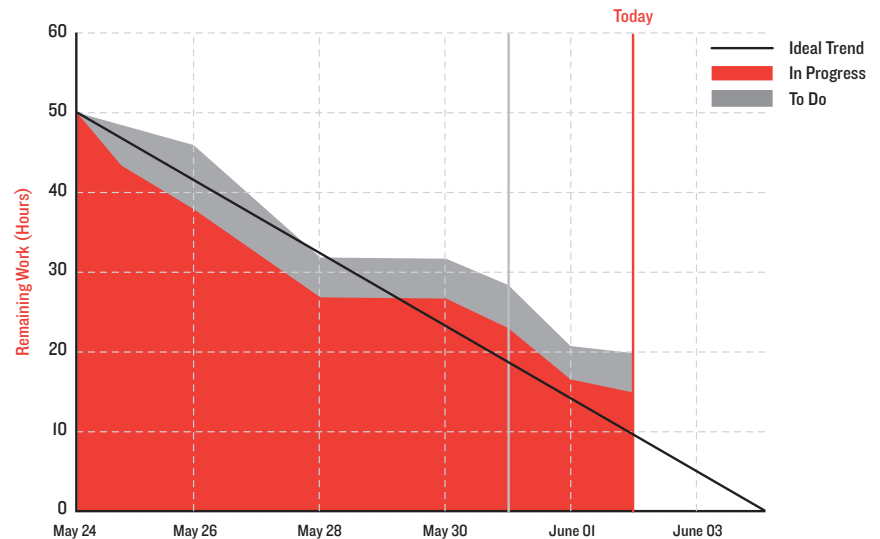
Measures remaining Sprint Backlog across the time of a Sprint

Responsible Party...

- ScrumMaster

Characteristics...

- Graph with trend line
- Updated daily
- Complete when the Sprint is complete



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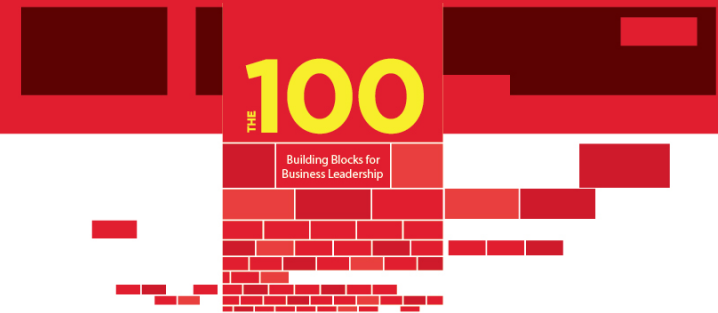
Scrum Ceremonies

- Sprint Planning
- Daily Scrum
- Sprint Review
- Sprint Retrospective

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Scrum Ceremonies – Sprint Planning

Establish the scope for a Sprint, and how the scope will be delivered

Attendees: Product Owner, Scrum Master, Team

1 to 8 hours

Agenda

- Graph with an optional trend line
- Part 1 – Define “what” will be committed to
 - ✓ Inputs: Product Backlog, latest increment of the product, team velocity, and team schedule for Sprint
 - ✓ Outputs: PBI’s committed to, relative effort for each PBI, Sprint goal, Sprint start/end dates
- Part 2 – Define “how” the committed items will be completed (i.e., tasks)
 - ✓ Inputs: Results of part 1
 - ✓ Outputs: prioritized set of tasks and test cases that correlate to PBI’s, effort for each task

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Scrum Ceremonies – Sprint Planning

Planning Poker

- Consensus estimate on relative effort to complete a user story or task
- Inputs:
 - ✓ Deck of cards – numbers vary among different deck types
 - ✓ User stories or tasks for the given Sprint
- Process:
 - ✓ Product Owner presents the user story or task
 - ✓ The Team discusses the user story or task
 - ✓ Each individual privately selects a card reflecting his/her estimate
 - ✓ After everyone has selected, all cards are revealed simultaneously
 - ✓ If estimates differ, insightful discussion ensues
 - ✓ Repeat until consensus is obtained
- Outputs:
 - ✓ Estimate for each user story or task in the Sprint

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Scrum Ceremonies – Daily Scrum

Improve communications, identify and remove impediments to development, highlight and promote quick decision-making, and improve everyone's level of project knowledge

Attendees: Product Owner, Scrum Master, Team

15 minutes

Agenda

- What did I accomplish yesterday?
- What do I plan to accomplish today?
- What obstacles are in my way?
- Rules
 - ✓ Stand up
 - ✓ Speak briefly; Chickens cannot speak or interfere
 - ✓ Not a status meeting
 - ✓ Don't attempt to solve obstacles in the meeting

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Scrum Ceremonies – Sprint Review

Collaborate about what was completed during the Sprint, and about what could be done during the next Sprint

Attendees: Product Owner, Scrum Master, Team, Stakeholders, Users, any interested parties

1 to 3 hours

Agenda

- What was done / not done during the Sprint?
- Demonstration of work completed
- Discuss questions and feedback pertaining to what was demonstrated
- Provide brief overall status of Product Backlog
- Discuss functionality that could possibly be done in the next Sprint

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Scrum Ceremonies – Sprint Retrospective

Inspect the last Sprint in regards to people, relationships, process, tools, etc. Identify improvements. See download ["D25-03 –Team Retrospective"](#) a tool to improve the retrospective.

Attendees: Product Owner, Scrum Master, Team,

1 to 3 hours

Agenda

- What worked well?
- What didn't work well?
- What should be changed to make the next Sprint more effective and enjoyable?
 - ✓ Team composition
 - ✓ Meeting arrangements
 - ✓ Tools
 - ✓ Definition of "done"
 - ✓ Methods of communication
 - ✓ Processes for turning Product Backlog items into something "done"

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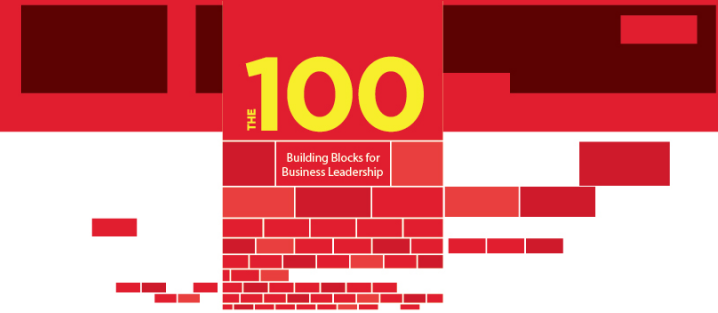
Scrum and Waterfall Comparison

Concept	Waterfall	Scrum
Engineering Lifecycle		
Overall Lifecycle	Sequence of stages/phases with milestones that are gated. Stages usually correlate with planning, analysis & requirements, development, testing, and deployment. Each stage is dependent on the full completion of the last stage.	Sequence of iterations (i.e., sprints), where each iteration may contain aspects of all stages.
Process Control	Defined process control – every aspect of the project is planned, defined, and documented, usually with sign-offs.	Empirical process control – only those project assets that are deemed necessary are the ones that are created. Controlled by frequent inspection and adaptation.

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Scrum and Waterfall Comparison

Concept	Waterfall	Scrum
Engineering Phases		
Business Analysis and Requirements	SRS, use cases	User stories, epics, use cases
Construction	Source code, database, scripts, etc.	Source code, database, scripts, etc.
Deployment	Deployment steps, operations manual, build scripts, etc.	Build scripts, automated builds & deployments
Testing	Test cases, test scripts, test execution log	User story acceptance criteria, test cases, test scripts, test execution log – favors all of these as executable / automated

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Scrum and Waterfall Comparison

Concept	Waterfall	Scrum
Meetings		
Iteration Planning Meetings	None	Sprint planning meetings to define work items and estimates for the iteration, usually held monthly.
Iteration Review Meetings	Milestone review meetings	Sprint review meetings to demonstrate results of the sprint, usually held monthly.
Post-mortem Meeting	Lessons learned meeting, usually held at the end of the project. Agenda usually focuses on what went well, and what needs improvement on next project.	Sprint retrospective meeting held at completion of each sprint. Agenda focuses on what went well, what needs improvement, and which items will be acted upon in the next sprint.
Status Meetings	Team status meeting, usually held weekly with varying agenda. Meeting length = varies (but often 1 hour).	Daily Scrum meetings where team members answer 3 questions. Meeting length = 15 minutes.

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Scrum and Waterfall Comparison

Concept		Waterfall	Scrum
Product Management			
Product Ownership	Varies		Single product owner (preferably)
Product Releases	Product usually delivered as a whole at the end		Product delivered incrementally

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Scrum and Waterfall Comparison

Concept	Waterfall	Scrum
Project Management		
Change Management	Create a process for requesting, approving, and prioritizing changes. Focus for approval and prioritization should be on the business (i.e., product owner).	Create a process for requesting, approving, and prioritizing changes. Focus for approval and prioritization should be on the business (i.e., product owner).
Issue Management	Issue log	Impediment list
Management Structure	Hierarchical structure, often silo groups	Flat, team structure
Project Tracking	Project status, schedule, Gantt chart	Release burndown, sprint burndown
Risk Management	Risk management plan	Anticipated impediment list

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Scrum and Waterfall Comparison

Concept	Waterfall	Scrum
Project Management (continued)		
Scope Management	High level feature list, work breakdown structure	Product backlog, sprint backlog
Stress Management	Varies	Varies
Timeline Checkpoints	Milestone	Sprint review
Work Estimates	Time estimates (e.g., man hours)	Relative work estimates (e.g., story points)
Work Item	Task	Sprint backlog item

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Scrum Best Practices - Sprints

- Centralize the team as much as possible
- Sprints = 3 or 4 weeks
- Early Sprints will have some backlog items pertaining to “envisioning”
 - ✓ High-level system architecture
 - ✓ Team standards
 - ✓ User interface design basics
 - ✓ Infrastructure provisioning
- Allow some time between Sprints

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Scrum Best Practices – Daily Scrum

- Daily Scrum should become part of your daily fabric
 - ✓ Same time
 - ✓ Same location
 - ✓ Same people
- Use visual items to reinforce the process (i.e., task whiteboard with sticky notes, printed backlogs from TFS, etc.)
- Use tools to enforce the process
 - ✓ Team Foundation Server – Visual Studio Scrum

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Scrum Best Practices – User Stories

- Set some standards and enforce them
- MUST include the “so that <some reason>“
 - ✓ Provides the context in 2 years when you cannot remember why a feature was implemented
- MUST include Acceptance Criteria

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Scrum Best Practices

- Use a hybrid approach – inspect, adapt, evolve
- Don't worry about velocity right away; it takes several sprints to really start meaning something
- Don't have a lengthy debate about your effort estimation technique (e.g., Planning Poker)
 - ✓ Pick something and stick with it for consistency
- Product backlog should be in good condition before the Sprint Planning meeting

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Scrum Best Practices

- Use a hybrid approach – inspect, adapt, evolve
- Product Owner acts as single point of contact for the product
 - ✓ Questions
 - ✓ Bugs and issues
 - ✓ New features
 - ✓ Budget, priorities, etc.

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