

# Introduction to Agile and Scrum





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### **Blake McMillan**

Professional Scrum Trainer through Scrum.org Professional Kanban Trainer with ProKanban.org

Director of Training at Improving with a focus on Agile/Scrum/Kanban offering the following classes:























Creator and blogger for <u>SoulofScrum.com</u> and experienced facilitator, public speaker, and creator of Agile games

Companies Supported:















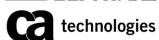


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William "Red" Davidson

CSM CSPO
ICP-ACC ICP-ATF SAFe-SA
Former: PMP, PMI-ACP, DASSM
https://www.linkedin.com/in/reddavidson/

Team Lead

Development Manager

Project Scrum Manager Master

Program Agile Manager Coach

PMO Lead

## Pithy 15 second introduction for yourself:

- Your Name
- Your Location
- · Your Branch of Service
- Favorite Pie



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## **Working Agreements**

- · PDF of slides available
- Camera on
- Stay muted (hold down space bar to temporarily unmute your mic – Push to Talk)
- I will call for volunteers to read certain content.
- Lunch from Noon to 1 PM Central Time
- 5-minute breaks each 45 mins or so



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## **Working Agreements**

Questions? We'll break frequently. But if you have a question burning, please ask it! "Hey Red!"



- If something goes wrong, interrupt me! "Hey Red!".
- Use Raise Hand to get my attention:
- Use the Chat window!





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### Agile for Patriots - Overview

- Attend Introduction to Agile and Scrum course
  - · Day 1: Scrum Guide
  - · Overnight, take Open Assessments
  - · Day 2: Beyond the Scrum Guide
  - · Day 3: Agile, Leadership, Scaling, Trends, ...

Complete and return Scrum Open Assessment by CoB 3/21

- Prepare for Applying Professional Scrum course
  - Complete Pre-work
  - If necessary, self-study and pass Open Assessments
- April 2-4: Applying Professional Scrum course Take the Professional Scrum Master I test to become a certified PSM I

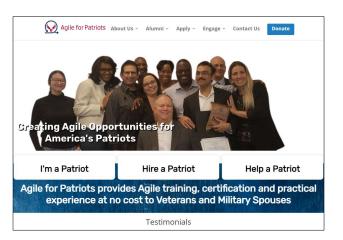


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## Agile for Patriots - Overview

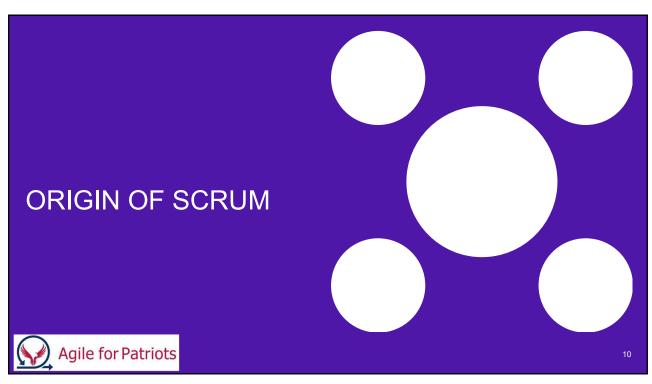
- May 2-3: 1½ prep day
- May 8-19: Participate in the Practicum
  - Using Scrum, work a project
  - · Update the AFP Site
  - · Hear from speakers
  - And more...
  - Graduate
- · Enter the Alumni cohort





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## Co-creators of Scrum



Soff what

Ken Schunder

Jeff Sutherland

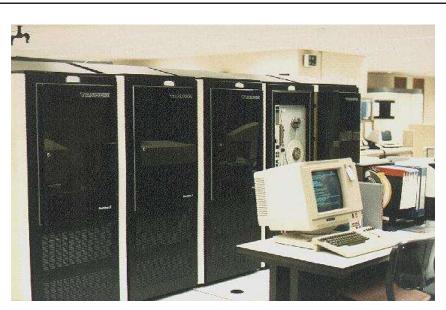
Ken Schwaber



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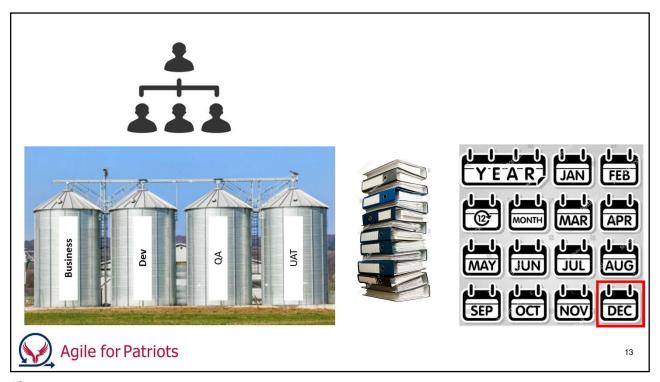
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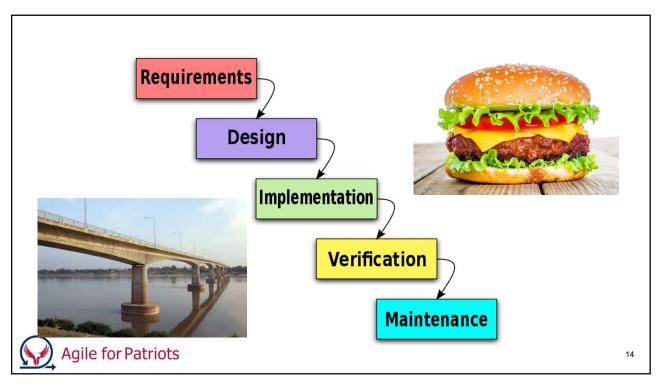
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## **Uncertainty in Software Delivery**

## What have been the biggest reasons for uncertainty?

• MARKET: - Competition, Industry Changes, Regulations

• REQUIREMENTS: - Building what customers don't want

• TECHNOLOGY: - Not behaving as expected

• COMMUNICATION: - Misunderstandings within the team

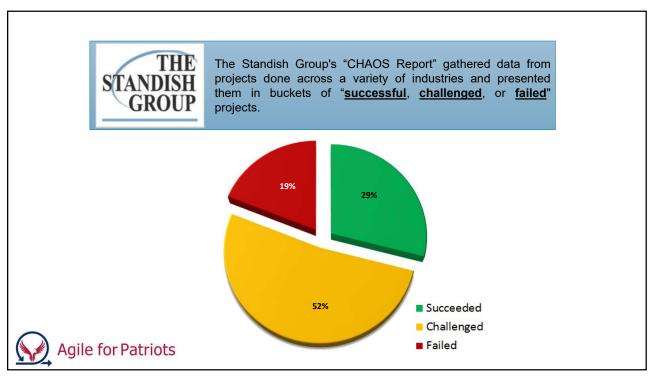
QUALITY: - Money on defects vs innovation

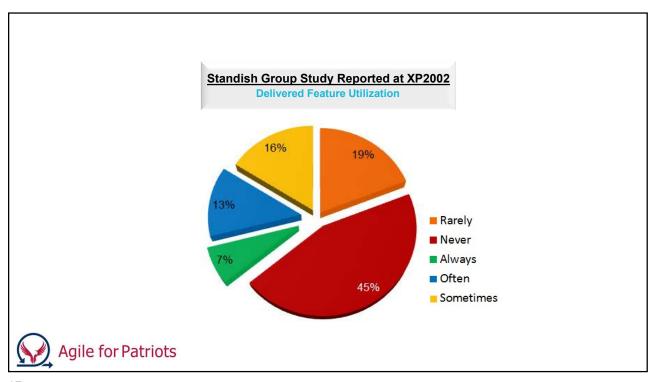
PEOPLE: - Morale, exhaustion, humanity

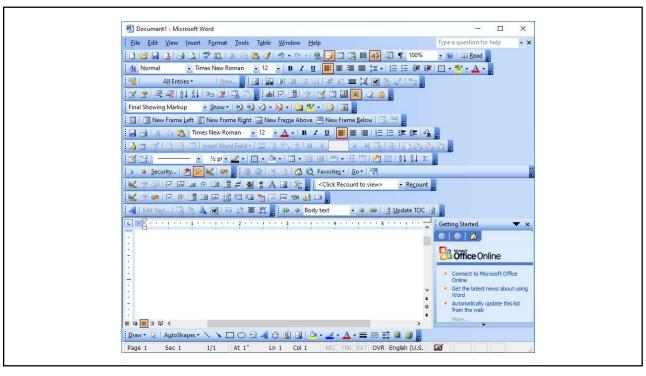
• OTHER...?

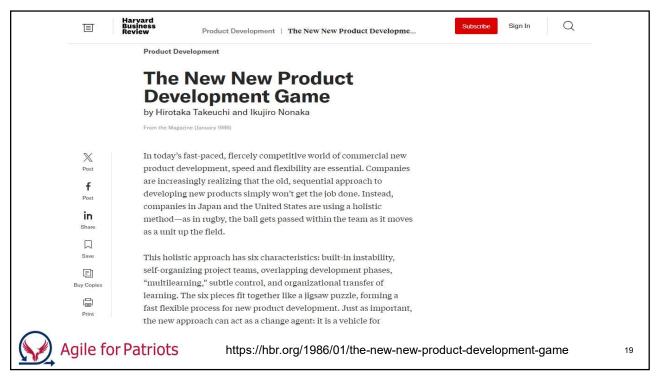
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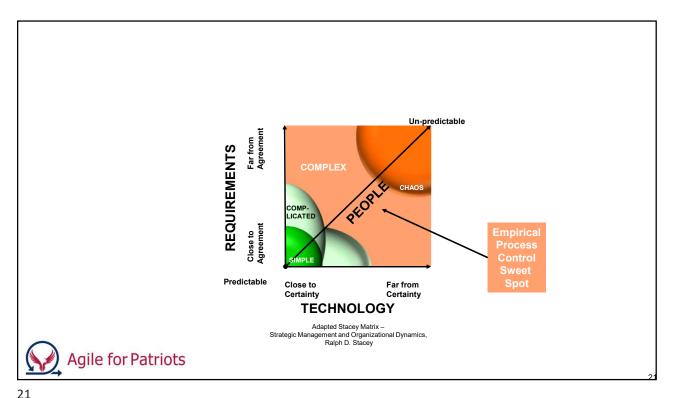




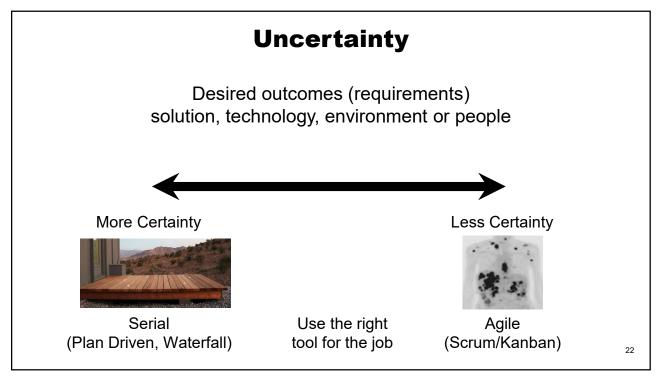




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## Or Stated Another Way

#### **Traditional:**

Create a Plan
Follow the Plan, the Plan is Truth
Achieve the Plan is the Goal

Earned Value





### Scrum:

Create plan to build small increment
Build small increment – ready for
market

Show increment to users, buyers Using their feedback:

- Release or hold the increment
- Decide on next steps

Biggest bang for the buck is the goal (Biggest impact at least effort/cost)

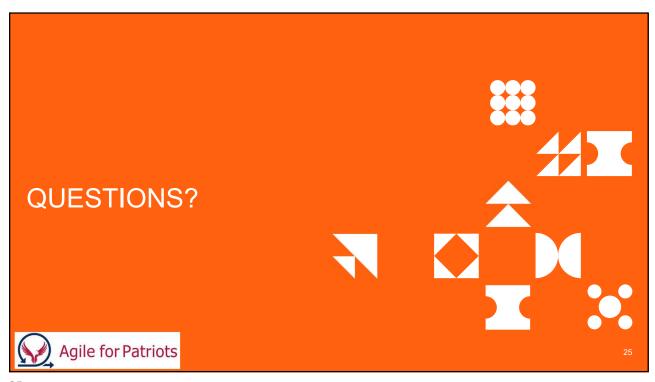
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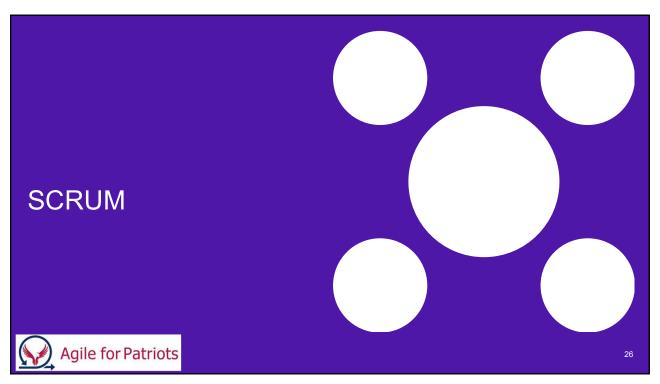
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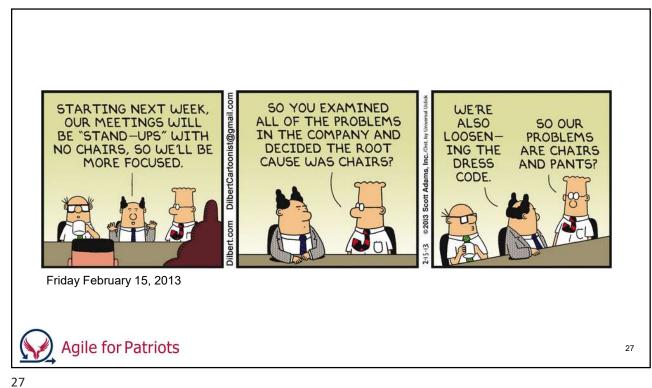
### SUMMARY: No One Best Practice

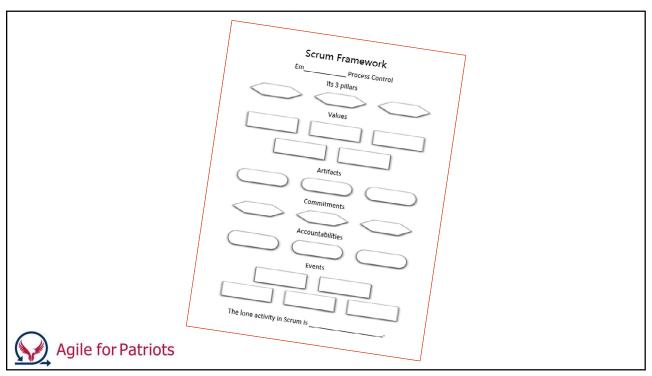
- Big Plan Up Front and Big Design Up Front are appropriate for problem where there is great certainty in requirements, technology, people, effectiveness, etc.
- Lacking certainty, empirical processes are best applied.











### Origins of Scrum

- "Scrum" first appeared in a 1986 HBR article as a metaphor for a team-based product development process.
- Jeff Sutherland developed Scrum for software product development in 1993.
- Ken Schwaber formalized the process in presentation at OOPSLA 1995.
- The Scrum framework is defined in a 14-page guide.
- Written by Ken Schwaber and Jeff Sutherland.
- It's free!
- · Available for download from www.scrumguides.org
- Last updated: November 2020 (25th anniversary).

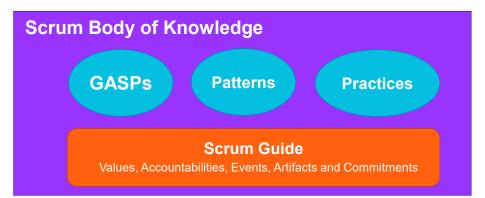


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### Scrum is a Framework

- The Scrum framework is purposefully incomplete.
- The Guide only defines the parts required to implement Scrum theory.



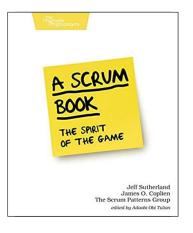


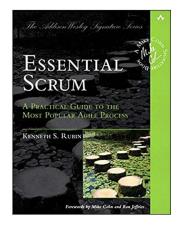
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### Framework vs. Detailed Materials







14 pages

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~575 pages

~495 pages

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### Other Than Software Scrum

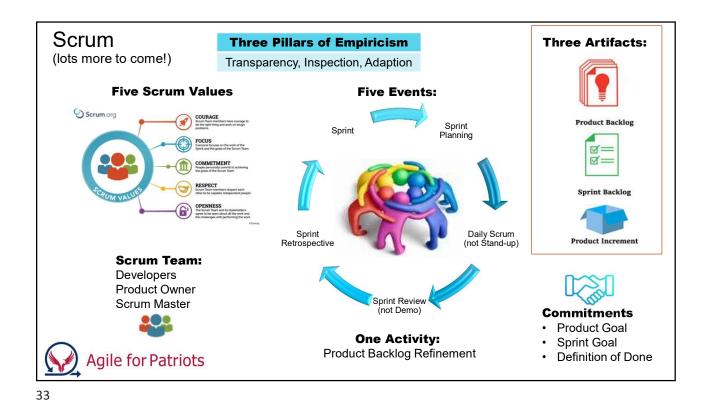


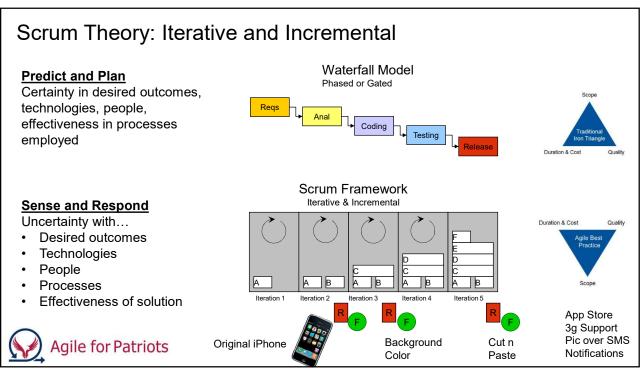
wikispeed.org/

www.scruminc.com/wp-content/uploads/ 2015/09/Release-version Owning-the-Sky-with-Agile.pdf

eduscrum.nl/en/

www.scrumyourwedding.com/





## Making Complex Simple

 Sashimi is a Japanese delicacy consisting of very fresh raw meat or fish sliced into thin pieces.





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Image credit: SpaceX

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## Scrum is founded on empiricism and lean thinking

Empiricism: knowledge comes from experience and

decisions are based on our prior observations

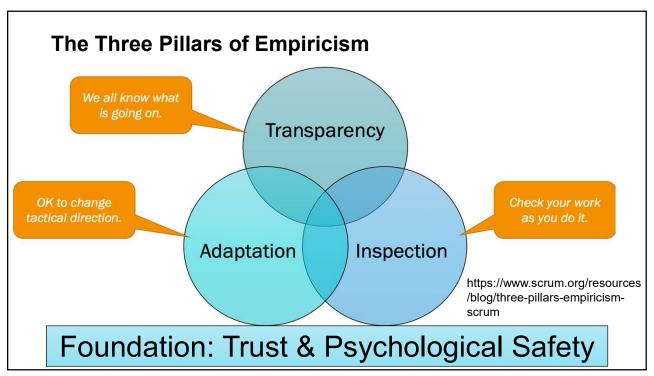
Lean thinking: reduces waste and focus on the essentials





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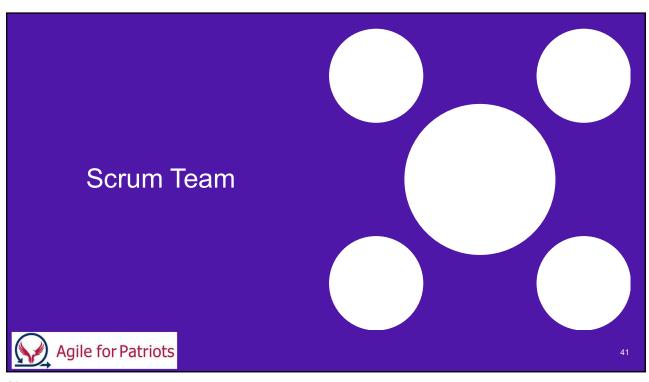
## SUMMARY: Scrum Theory

- · Scrum is based upon Empiricism and Lean Thinking.
  - Empiricism asserts that knowledge comes from experience and making decisions based on what is observed.
  - · Lean thinking reduces waste and focuses on the essentials.
- Three Pillars of Empiricism: Transparency, Inspection and Adaptation
- Scrum employs an iterative & incremental approach to building the solution.

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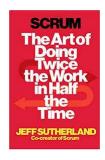
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## Teams are what get things done in the world of work.

There are teams that make cars, answer phones, do surgery, program computers, put the news on and burst through the doors of apartments occupied by terrorists.





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### A Scrum Team ...





- One Scrum Master, one Product Owner, and Developers.
  - No sub-teams or hierarchies
- Cross-functional:
  - They have all the skills necessary to create value each Sprint.
- Team size: 10 people or fewer.
  - Smaller teams communicate better, more productive.
- Stable team preferred (don't shuffle people around). Stable teams tend to get to know their capacity, which makes it possible for the business have some predictability.

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### A Scrum Team ...







- Self-managing:
  - They internally decide who does what, when, and how.
  - They are structured and empowered by the organization to manage their own work.
- Focused on one objective at a time, the Product Goal.
- The entire Scrum Team is accountable for creating a valuable, useful Increment every Sprint.

## Teams Consist of People, not Resources



Resources are buyable and disposable. Human beings are not disposable. They can possess resources, but they're not resources in themselves.



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### Scrum Values

- **Courage.** Because we are not alone, we feel supported and have more resources at our disposal. This gives us the courage to undertake greater challenges.
- **Focus.** Because we focus on only a few things at a time, we work well together and produce excellent work. We deliver valuable items sooner.
- **Commitment.** Because we have great control over our own destiny, we become more committed to success. [NOTE: don't commit to getting a set of work done in a sprint... but rather achieving its goals and to supporting each other.]
- **Respect.** As we work together, sharing successes and failures, we come to respect each other and to help each other become worthy of respect.
- Openness. As we work together, we practice expressing how we're doing and what's in our way. We learn that it is good to express concerns so that they can be addressed.

Source: http://www.scrumalliance.org/why-scrum/core-scrum-values-roles



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### No sub-teams or hierarchies

**Product Owner** 

Why and What

Developers

How and How Much

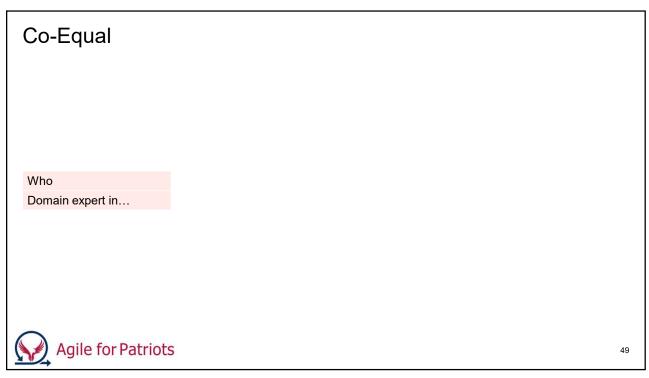
Scrum Master

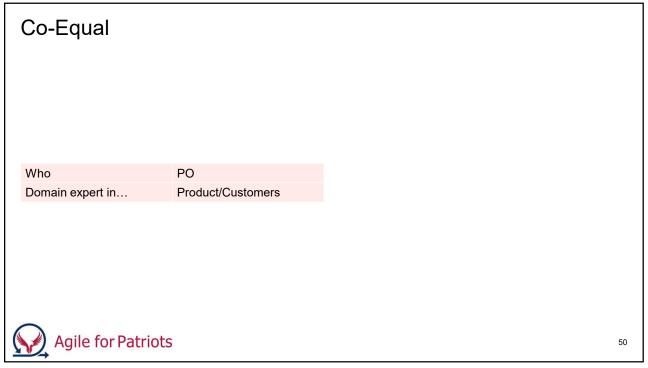
Team
Effectiveness
and Improvement

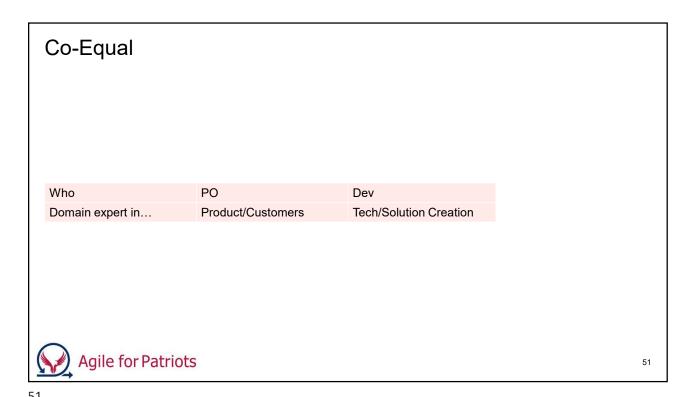
Co-equal. No one reports to anyone.

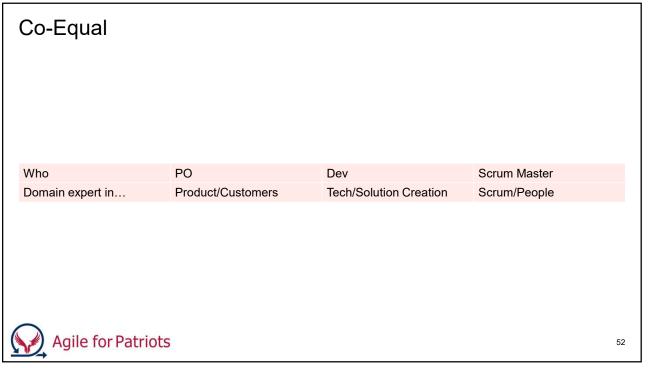


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### **Product Owner**

- One person, not a committee
- Accountable for maximizing the value of the product resulting from the work of the Scrum Team.



- Accountable for effective Product Backlog management, which includes:
  - · Developing and explicitly communicating the Product Goal;
  - Creating and clearly communicating Product Backlog items;
  - · Ordering Product Backlog items; and,
  - Ensuring that the Product Backlog is transparent, visible and understood.



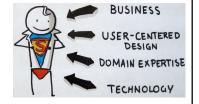
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### **Product Owner**

- For Product Owners to succeed, the entire organization must respect their decisions. These decisions are visible in the content and ordering of the Product Backlog, and through the inspectable Increment at the Sprint Review.
- While anyone can write backlog items, the Product Owner is solely accountable for ordering the items.
- Can cancel a Sprint if the Sprint Goal becomes obsolete.





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### The Developers



- Developers are the people in the Scrum Team that are committed to creating any aspect of a usable Increment each Sprint.
- · Developers are always accountable for:
  - Creating a plan for the Sprint, the Sprint Backlog;
  - Build Increment(s) with quality by adhering to a Definition of Done at a sustainable pace
  - Adapting their plan each day toward the Sprint Goal; and,
  - Holding each other accountable as professionals.



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### Decisions Made by Empowered Developers

- · Estimates the size of their work as a team; backlog items, user stories, tasks, etc.
- For Sprint Planning:
  - · Determines their capacity for the upcoming Sprint.
  - Decides the amount of work to bring into the Sprint.
     The team avoids exceeding their capacity. At the end of Sprint Planning, the team believes they can complete a vast majority (>80%) of their work to their Definition of Done by the end of the Sprint.
- Decides who does what to complete the work in the Sprint.
- Decides how to create the solution with minimal oversight or approvals. No one (not even the Scrum Master) tells the Developments how to turn Product Backlog into Increments of potentially releasable functionality
- Decides what to do if they fall behind or get ahead during a Sprint in collaboration with the PO.
- Decides which process improvement effort(s) they will undertake to improve their skills, the process or tools
  they use to create the solution or the relationships within the team or between the team and its
  stakeholders.

### Scrum Master



- NOT a Project Manager!
- Accountable for establishing Scrum as defined in the Scrum Guide.
- Accountable for the Scrum Team's effectiveness.
  - Their domain: making the team effective; not being the technical expert!
- In service to the Scrum Team:
  - Coaching the team members in self-management and cross-functionality;
  - Helping the Scrum Team focus on creating high-value Increments that meet the Definition of Done:
  - Causing the removal of impediments to the Scrum Team's progress; and,
  - Ensuring that all Scrum events take place and are positive, productive, and kept within the timebox.



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### Serves the Product Owner, including:



- Helping find techniques for effective Product Goal definition and Product Backlog management;
- Helping the Scrum Team understand the need for clear and concise Product Backlog items;
- Helping establish empirical product planning for a complex environment; and,
- · Facilitating stakeholder collaboration as requested or needed.

Great partnership, but the Scrum Master must protect the team!

### Serves the organization, including

- Leading, training, and coaching the organization in its Scrum adoption;
- Planning and advising Scrum implementations within the organization;
- Helping employees and stakeholders understand and enact an empirical approach for complex work; and,
- Removing barriers between stakeholders and Scrum Teams.



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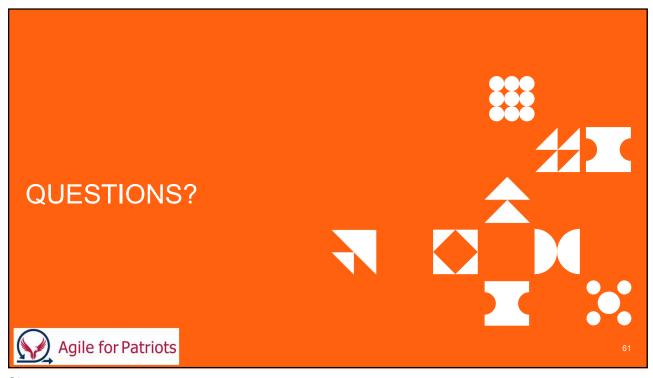
### **SUMMARY: Accountabilities**

- Scrum Team consists of one Scrum Master, one Product Owner, and Developers
- One team, One product, One mission.
- Scrum Team is 10 or fewer people; have all skills needed to do the job.
- Developers:
  - · Size backlog items
  - · Decide how much to bring into each sprint
  - Work at a sustainable pace
  - Complete work to the Definition of Done (quality standards)



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### **Artifacts and Commitments Pairs**

Each **artifact** contains a **commitment** to ensure it provides information that enhances transparency and focus against which progress can be measured.

Commitment	Artifact
Product Goal	Product Backlog
Sprint Goal	Sprint Backlog
Definition of Done	Increment

We commit ourselves to the \_\_\_\_\_, which is manifested in \_\_\_\_\_.



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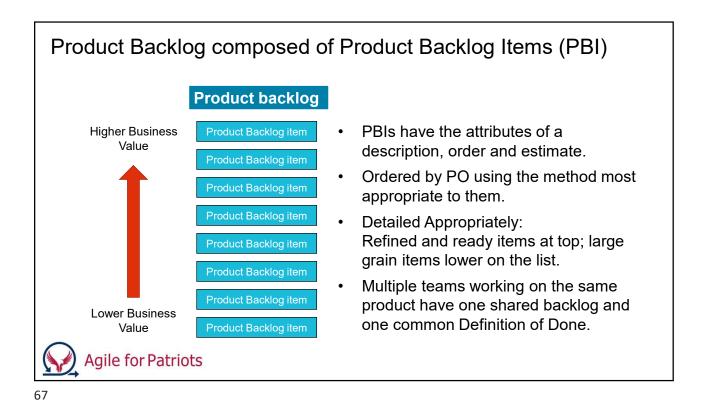
### Product Backlog and Product Goal

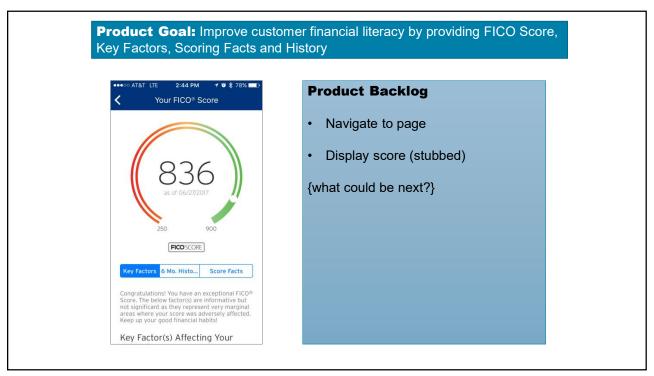
- The **Product Goal** is the long-term objective for the Scrum Team.
- It describes a future state of the product which can serve as a target for the Scrum Team to plan against.
- They must fulfill (or abandon) one objective before taking on the next.
- The **Product Backlog** is an emergent, ordered list of what is needed to improve the product. It is the single source of work undertaken by the Scrum Team.
- Items can be added at any time but PO orders the list.
- Developers who will be doing the work are responsible for the sizing.



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#### **Product Backlog**

- · Navigate to page
- Display score (stubbed)
- · Display animation
- Display score from service provider
- Add tab control and Score Facts tab
- Key Factors Tab
- Six Month History Tab

First Release

Future

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### Sprint Backlog and Sprint Goal

- The **Sprint Goal** is the single objective for the Sprint.
- Collaboratively created during the Sprint Planning event (initially proposed by Product Owner, then negotiated based on backlog items, the developer's capacity and other factors).
- The Sprint Backlog is composed of...
  - The Sprint Goal (why)
  - The set of Product Backlog items selected for the Sprint (what)
  - An actionable plan for delivering the Increment (how)



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### Increment and Definition of Done

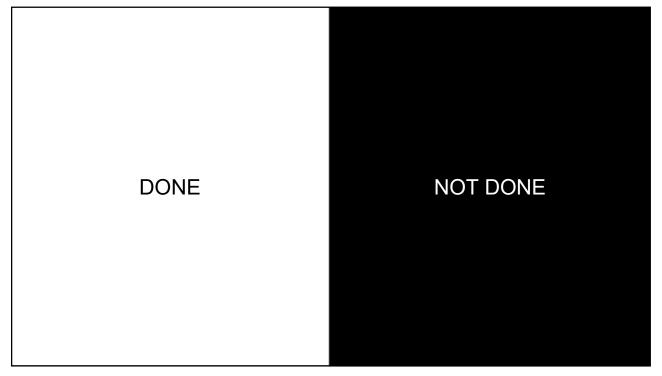
- An **Increment** is a concrete steppingstone toward the Product Goal.
- To provide value, the Increment must be usable; work is not considered complete until it meets the Definition of Done.
- Each Increment is additive to all prior Increments and thoroughly verified, ensuring that all Increments work together.
- Can create more than one per Sprint
- The **Definition of Done** is a formal description of the state of the Increment when it meets the quality measures required for the product.
- Org may have one; otherwise, Scrum Team creates theirs.



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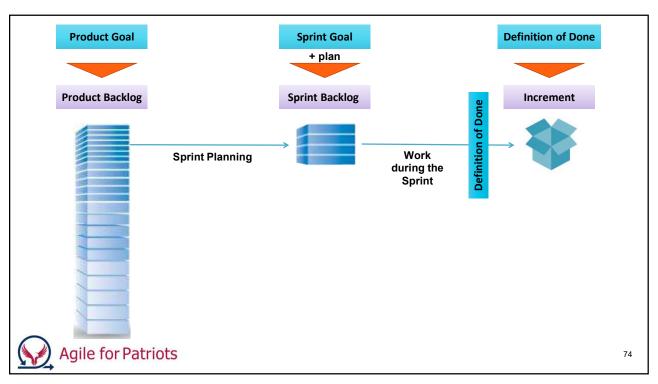


# Example Definition of Done (Software)

- Story complete satisfies all Acceptance Criteria; Production Ready (or UAT Ready); verbally approved by Product Owner.
- Code completed (no 'to do' items), reviewed as meeting our coding standards, checked in and built in the integration environment.
- Feature toggles, site analytics implemented.
- Unit tests written and passed.
- Deployed to system test environment and passed system tests.
- No known customer impactful defects.
- Any build, deployment or configuration changes have been implemented, documented, reviewed and communicated.
- Relevant documentation and diagrams, including SDLC, produced and/or updated.

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# Technical Debt is a Velocity

A metaphor for doing things in a quick and dirty way resulting in extra effort that we have to do in future development because of the quick and dirty design choice.

#### Examples:

- · Existing defects
- · Lack of build or test automation
- · Depreciated or overly complex code
- · Lack of Unit Tests
- · Highly coupled code
- · High Cyclomatic complexity
- · Duplicate code
- · Unreadable names



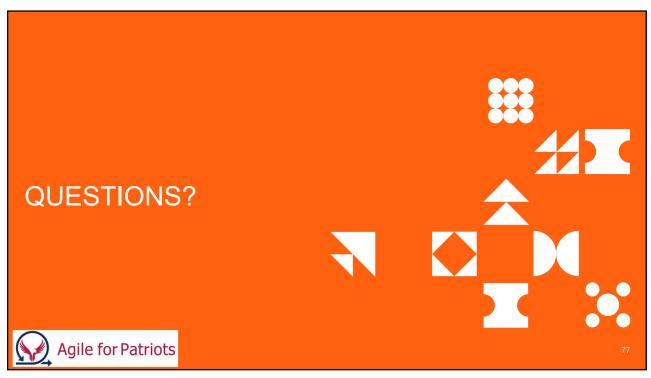
Presents of Technical Debt reduces the team's ability to deliver new increments.

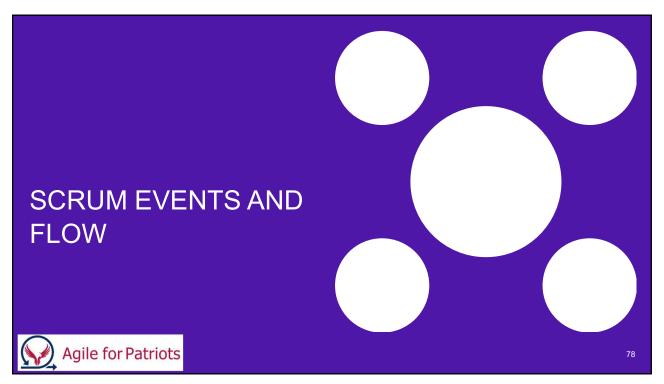
Building to your Definition of Done helps prevent <u>adding</u> technical debt to the solution.

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### **SUMMARY: Scrum Artifacts and Commitments**

- Three Artifact/Commitment pairs:
  - Product Goal <> Product Backlog
  - Spring Goal <> Sprint Backlog
  - Definition of Done <> Increment
- The Product Goal is the team's objective.
- The Product Backlog is the team's single source of work.
- The Sprint Backlog includes the Sprint Goal, selected backlog items and the plan to address the work during the Sprint.
- The Increment is built to the Definition of Done.
- Tech debt is drag on the team's ability to deliver value.





# Five Events & An Activity

#### Sprint

• A fixed period of time (typically 2-4 weeks) in which a small piece of the product is completed.

### Sprint Planning

- What will be built in the next iteration, Why are we building it, How will we get it done?
- Define Sprint Goal.

#### • **Daily Scrum** (not Stand-up)

• Planning how the team will get highest priority done ASAP. Limited to 15 minutes each day.

#### Sprint Review

• Customer sees/uses the completed work and provides feedback

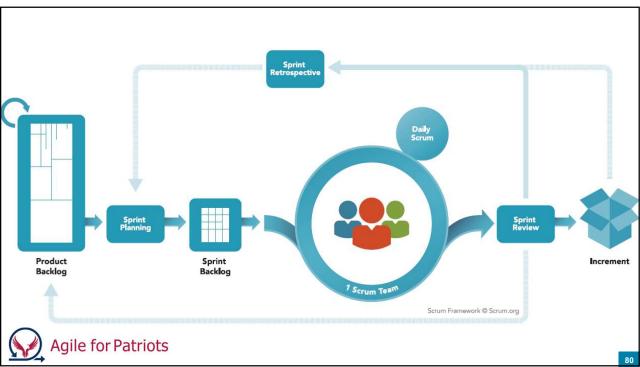
### Sprint Retrospective

· Reflect on what went well and how to get better.

### Backlog Refinement

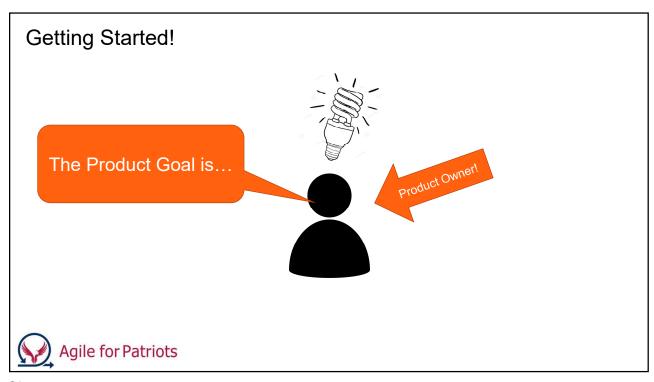
• Decompose, estimate and make ready (immediately actionable, no stopper) the top items on the Product Backlog.

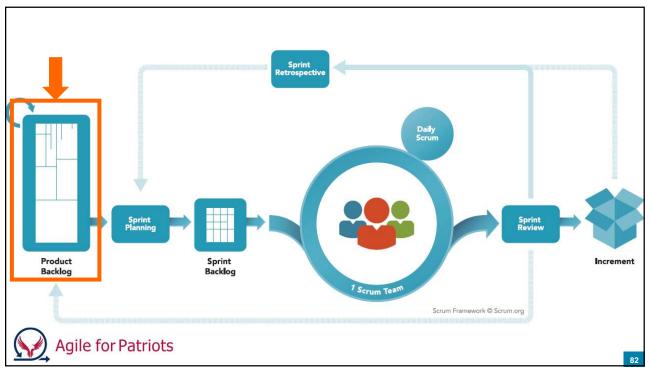
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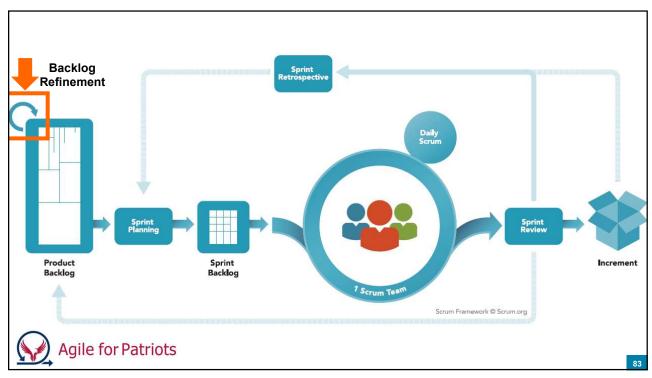














# Refinement (Activity)

- Ongoing process by which Product Owner & Developers collaborate to add details, estimates & order to the product backlog.
- Usually taking no more than 10% of the Dev team capacity.
- Developers are responsible for all estimates. PO (or external SMEs) may influence the Developers by helping it understand and select trade-offs.
- Make items ready for the Sprint



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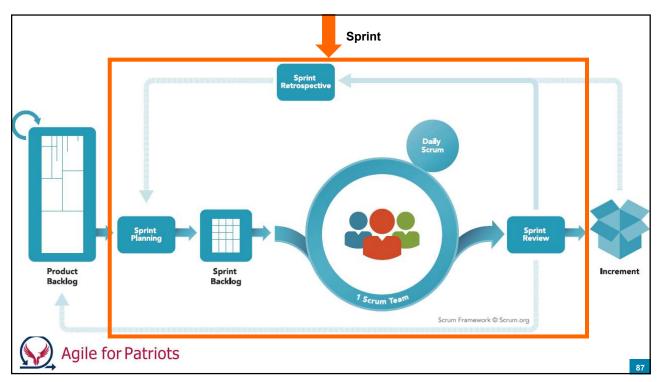
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Backlog Refinement is *not* once and done. It's an **ongoing activity** that usually has multiple steps.



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# The Sprint

- Time-box of 1 month or less during which a "Done", useable, and potentially releasable Increment is created.
- Consistent duration throughout a dev effort.
  - A new Sprint starts immediately after the conclusion of the previous.
- Container of risk.
- Cancelled by PO only when Sprint Goal becomes obsolete



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# **Choosing the Sprint**

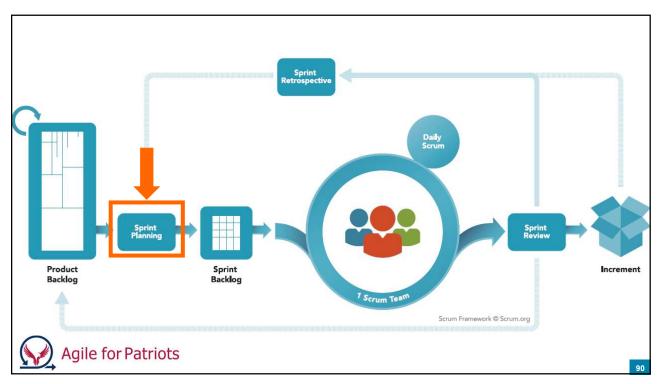
- Time-box of 1 month or less
- Short enough to contain the Business Risk (can we create a potentially shippable increment)
- Short enough to synchronize with other Business Events (reporting, budget reviews)



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# **Sprint Planning**

- Time-box of 8 hrs or less at start of each sprint.
- Entire scrum team collaboratively plans the work to be done in the sprint.
  - PO states Why the proposed goal is important, the Sprint Goal
  - All determine <u>what</u> can confidently be delivered in the Increment resulting from the upcoming Sprint
  - How the work needed to deliver the Increment be done
- This is the moment the developers become accountable for the value to be completed during the sprint.

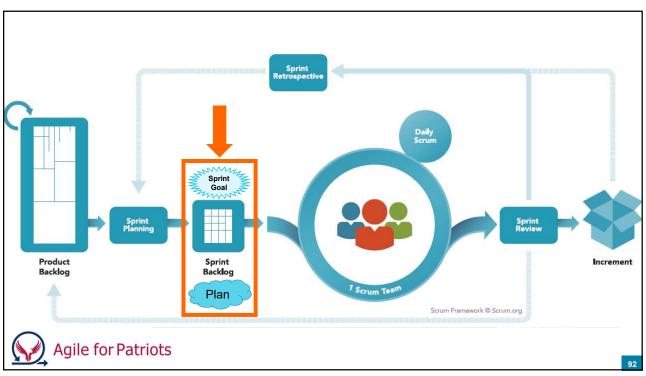


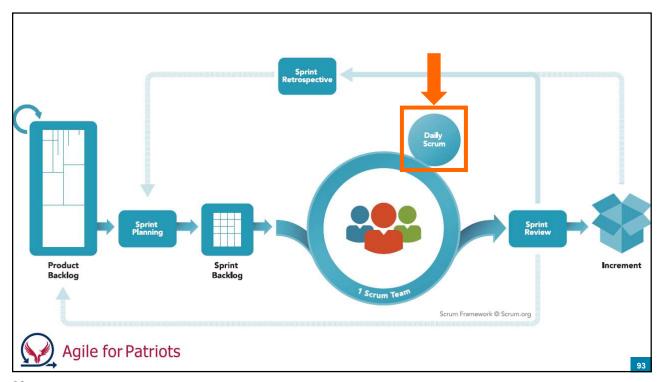


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# **Daily Scrum**

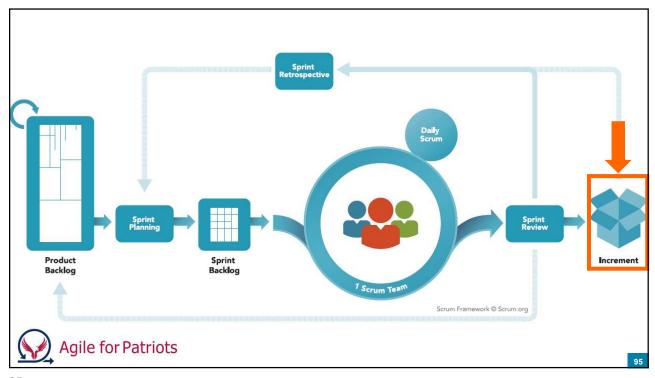
- 15-minute time-boxed daily event for the Developers
- Helps synchronize their activities & <u>create a plan for the next</u>
   <u>24 hours</u> by inspecting work since the last Daily Scrum & forecasting the work that could be done before next one.
- Same time & place each day (reduces complexity).
- You **do not** have to stand.

  3 questions are **no longer** listed in Scrum Guide.



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### Release the Increment

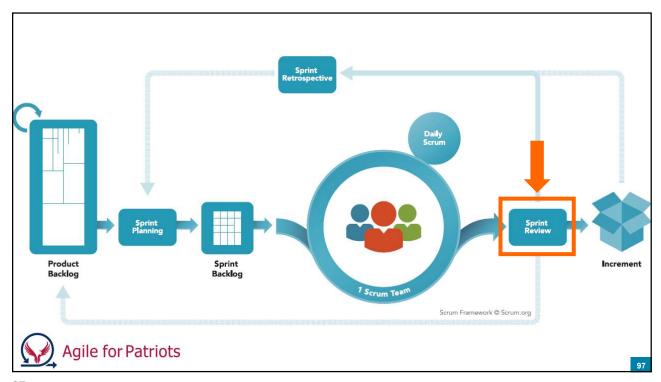


- Increment: a concrete stepping stone toward the Product Goal
- Increments are additive; the integration is thoroughly verified each sprint
- Typically, the PO decides to release the increment after the Sprint Review
- The increment does not have to be released after the sprint
- The increment can be release multiple times throughout the sprint



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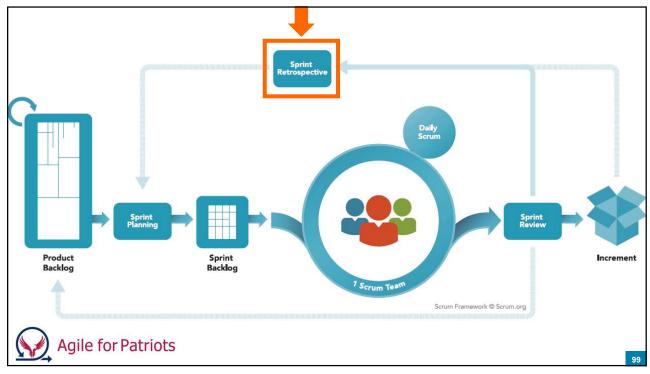
# **Sprint Review**

- Time-box of 4 hrs or less at the end of the Sprint to inspect the Increment and adapt the Product Backlog if needed.
- Scrum Team and stakeholders discuss what was done in the Sprint & collaborate on what might be done in next to optimize value.
- Results in a revised product backlog that likely impacts the upcoming Sprint.



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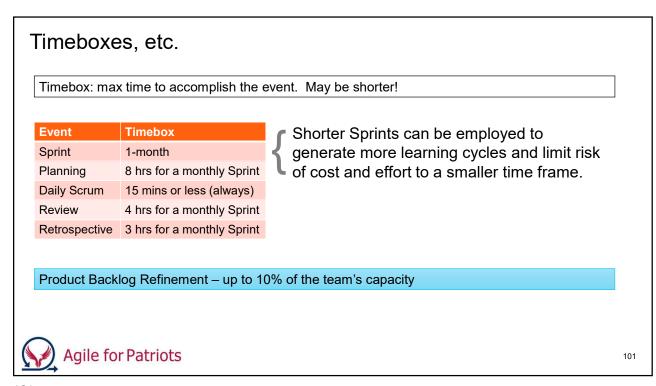
# **Sprint Retrospective**

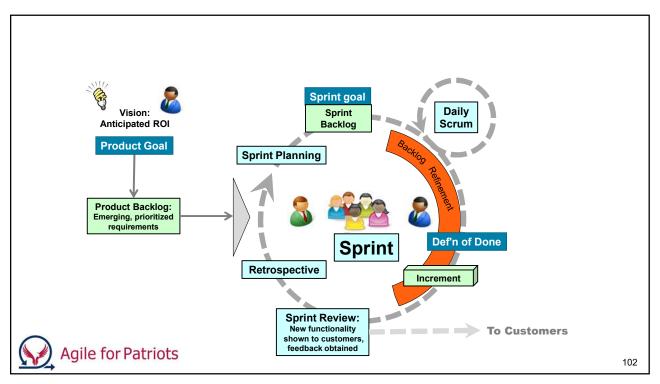
- Time-box of 3 hrs or less after Sprint Review & before next Sprint Planning.
- Plan ways to increase quality and effectiveness.
- Inspect previous sprint w.r.t. people, relationships, process, tools.
- Identifies the most helpful changes to improve its effectiveness.
- The most impactful improvements are addressed as soon as possible.
- They may even be added to the Sprint Backlog for the next Sprint.

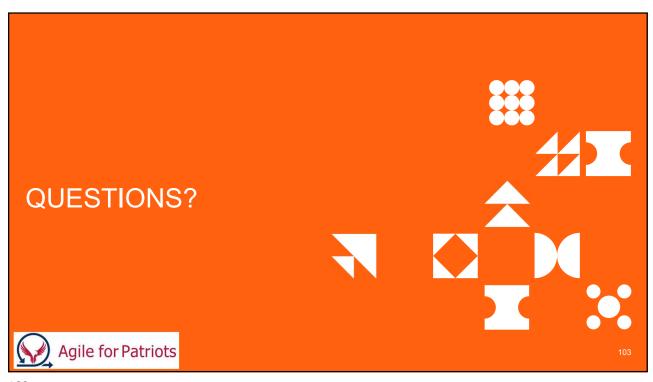


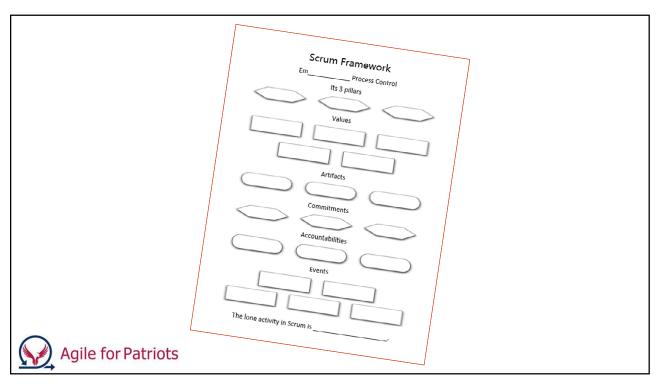
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Can one person have multiple accountabilities (e.g. Scrum Master and Developer)?

· While not prohibited, it is strongly discouraged.



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What should the team do if the Scrum Master is absent from the Daily Scrum?

 Continue as usual. The Daily Scrum is for the developers to synchronize their activities.



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What should the team do if the Product Owner is absent during a Sprint?

Keep working towards the Sprint Goal.
 Do the best they can.
 Catch the PO up once they are available.



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When can the Product Owner change their mind?

Sprint boundaries



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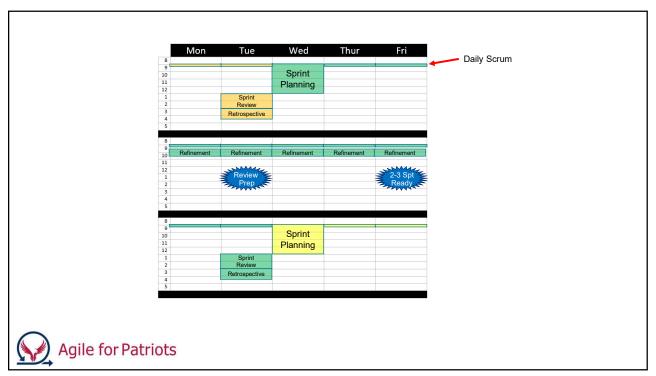
Your EVP wants to add work to the sprint?

• Whole Scrum team is consulted and collectively decides what to do



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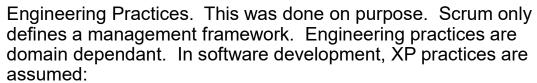
### Scrum Guide is Silent On...

How to capture and estimate requirements.

• Most use User Stories and Story Points.

Risk Management.

Metrics.



- Test Driven Development (TDD)
- Paired Programming (instant code reviews)
- Refactoring
- Continuous Integration/Continuous Automated Testing



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### **Adapting Scrum**

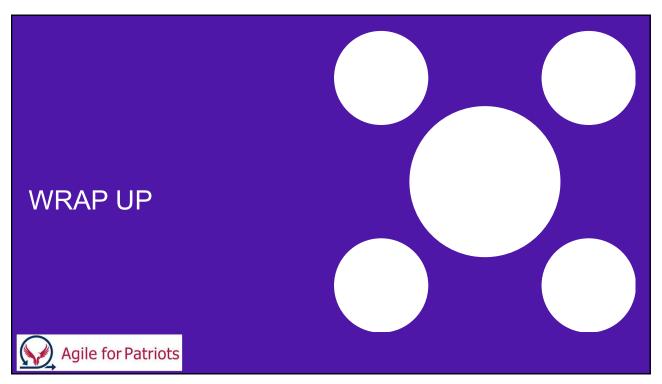
- Can be very disruptive causing anxiety (esp among management).
- Some organization want to change "labels" to something familiar
  - DON'T do this. Only by changing to the Scrum nomenclature will the organization recognize that thing have changed.
- Some organizations want to add to, modify or eliminate events
  - DON'T do this. Each artifact, event, etc. is already minimalist and each
    has its specific purpose. If a company does modify the framework, don't
    call it Scrum... you are no longer doing Scrum.



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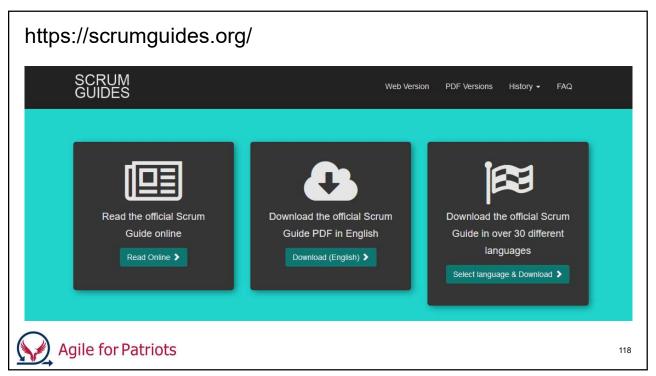
### Certifications

- · Sponsored by Scrum Alliance:
  - · Certified Scrum Master (CSM)
  - Certified Scrum Product Owner (CSPO)
  - · CSP, CSD, CTC, CEC, CST, CAL
- · Sponsored by Scrum.org:
  - Professional Scrum Master (PSM1, PSM2, PSM3)
  - Professional Scrum Product Owner (PSPO1, PSPO2)
  - More... PSD, SPS
- Sponsored by Scaled Agile:
  - Scaled Scrum Master (SSM); Scaled Advanced Scrum Master (SASM)
  - Scaled Scrum Product Manager Product Owner (SPMPO)
  - · More... SA, SPC, SP, SPCT,
- · Sponsored by Project Management Institute:
  - PMI-ACP (Agile Certified Practitioner)
  - Disciplined Agile (DASM, DASSM, ...)



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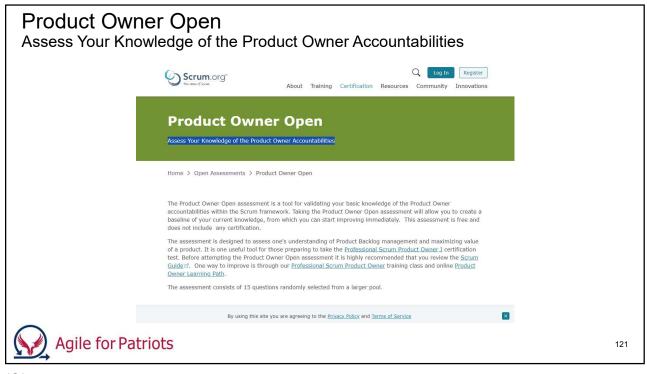


# Scrum Open - Assess your basic Scrum knowledge

- Number of questions: 30
- Has a time limit of: 30 minutes
- Must be finished in one sitting. You cannot save and finish later.
- Questions displayed per page: 1
- Will allow you to go back and change your answers.
- Will not let you finish with any questions unattempted.
- Has a pass mark of: 85%



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# Scrum Open - Assess your basic Scrum knowledge

- Number of questions: 15
- · Has a time limit of: 30 min
- Must be finished in one sitting. You cannot save and finish later.
- Questions displayed per page: 1
- Will allow you to go back and change your answers.
- Will not let you finish with any questions unattempted.
- Has a pass mark of: 85%



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