

PMP® EXAM PREP
PMI Authorized
Training Partner
BOOTCAMP
Session 5
Part 2

Class will resume at 2:30pm EST

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PMP® Exam Prep

This course will assist learners in preparing for PMI's PMP Exam (2021 Update)

Today's Session Topics (Mapped to the PMP Student Manual)

	Creating a High-Performing Team	Starting the Project	Doing the Work	Keeping the Team on Track	Keeping the Business in Mind
	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Topic A	Build a Team	Determine Appropriate Project Methodology/Methods and Practices	Assess and Manage Risks	Lead a Team	Manage Compliance Requirements
Topic B	Define Team Ground Rules	Plan and Manage Scope	Execute Project to Deliver Business Value	Support Team Performance	Evaluate and Deliver Project Benefits and Value
Topic C	Negotiate Project Agreements	Plan and Manage Schedule	Manage Communications	Address and Remove Impediments, Obstacles, and Blockers	Evaluate and Address Internal and External Business Environment Changes
Topic D	Empower Team Members and Stakeholders	Plan and Manage Budget and Resources	Engage Stakeholders	Manage Conflict	Support Organizational Change
Topic E	Train Team Members and Stakeholders	Plan and Manage Quality of Products and Deliverables	Create Project Artifacts	Collaborate with Stakeholders	Employ Continuous Process Improvement
Topic F	Engage and Support Virtual Teams	Integrate Project Planning Activities	Manage Project Changes	Mentor Relevant Stakeholders	Plus, BONUS Agile Content!
Topic G	Build Shared Understanding about a Project	Plan and Manage Procurement	Manage Project Issues	Apply Emotional Intelligence to Promote Team Performance	
Topic H		Establish Project Governance Structure	Ensure Knowledge Transfer for Project Continuity		
Topic I		Plan and Manage Project/Phase Closure			

SCRUM FRAMEWORK

Inputs from Executives, Team, Stakeholders, Customers, and Users **Daily Scrum** meeting **Every** 24 hours **Product** Scrum Developers Owner Master 1-4 week **Sprint Sprint Review** Task **Developers** breakout select as many R **Finished work** items as they С Sprint end date and can commit **Sprint** Team deliverable to deliver by **Backlog** do not change В end of Sprint **Product Sprint Planning Backlog Sprint Retrospective**

THE SCRUM TEAM

Includes:

Developers

Scrum Master

Product Owner







PRODUCT OWNER

- Develops product vision
- Serves as voice of the stakeholders (liaison)
- Collects requirements from stakeholders
- Determines value of features
- Prioritizes backlog items based on value
- Controls the budget
- Oversees return on investment
- Validates product quality



Product Owner



Stakeholders

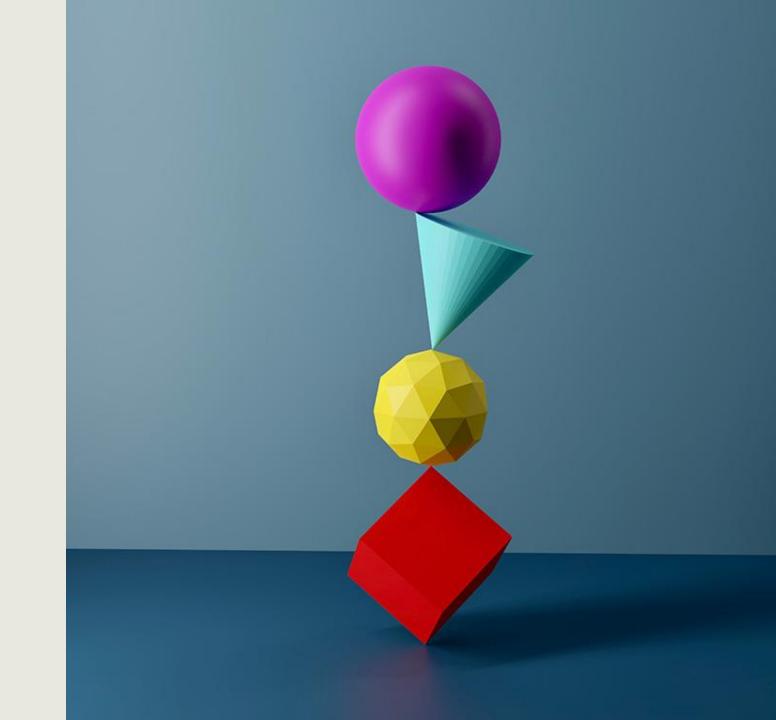


DEVELOPERS

- Also known as the Development Team
- Builds the product increments during each Sprint
- Estimates the work
- Decides what can be done during each Sprint
- Cross-functional
- Includes all skillsets such as "QA" or "Tester"
- Every necessary skillset is represented

CROSS-FUNCTIONAL DEVELOPMENT TEAM

- There is a balance of skills among the developers
- Every necessary skill and competency is represented
- "Developer" is a generic term. It includes every person who contributes to the "Done" product increment
- Borrowing team members can be disruptive
- Teams are organized around the project
- Team members may change
 - Consider the impact on productivity
 - More of an exception





SELF-ORGANIZED AND SELF-MANAGING

- Developers decide how they will be organized
- The Developers play a strong role in the selection of new team members
- This is also true for multiple teams working together
- Self-organization benefits:
 - Personal accountability
 - Commitment
 - Innovation and creativity

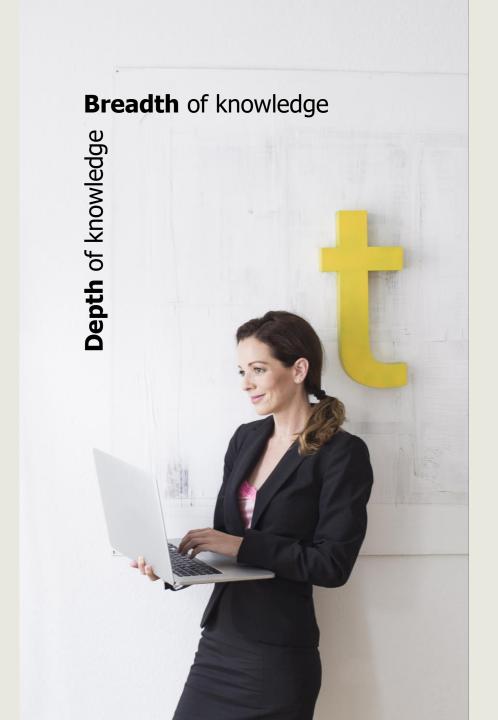


T-Shaped Skills

Agile teams invest in becoming more cross-functional.

Leveraging all team members to help accomplish the team goals improves:

- ✓ The team's efficiency
- ✓ The likelihood of achieving objectives





SCRUM MASTER

- Servant leader to Developers
- Ensures adherence to Scrum framework and roles
- Facilitates meetings
- Removes impediments (roadblocks, blockers)
- Serves as a buffer to prevent interruptions
- Provides essential tools and resources
- Coaches other team members
- Assists Product Owner with managing backlog
- Serves as Scrum "ambassador" to the organization



Course: Engaging Team Members and Stakeholders (2021 Update)

Video: Team Member Skill Sets (3:54 run time)

More about...

Team Member Skill Sets

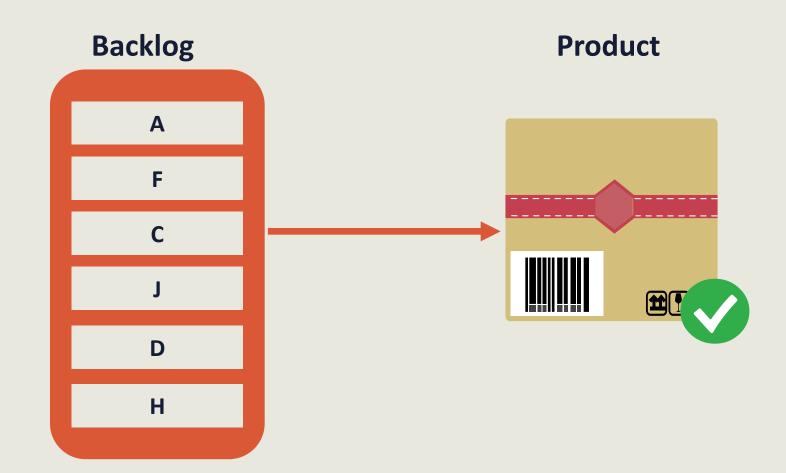
skillsoft!

SCRUM FRAMEWORK

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PRODUCT BACKLOG

- Prioritized list of everything that is needed in the product
- All work should be included.
 - Bug fixes
 - Security features
 - Changes
- Single source of product requirements
- Always changing
- Items are added, dropped, and reprioritized based on value
- The product is built incrementally based on work selected from the backlog



BACKLOG REFINEMENT

New features can be inserted into the priority list any time Not a Scrum meeting Product owner decides priority Constantly changes based on customer needs, new Minimum viable product (MVP) learning, and value B Feature D falls below the Allowable budget or schedule allowable budget

Product and Iteration Backlogs

Product backlogs

- ✓ Change throughout the project.
- ✓ Groom and refine the product backlog continually; weekly or monthly intervals are typical.
- ✓ Remove product backlog items (PBIs) as work is completed.
 - Edit and clarify PBIs as more becomes known or as product requirements change.
 - Add PBIs when more work must be done.

Iteration backlog

Teams must estimate effort and understand business priorities. A product backlog is a list of the expected work to deliver the product.

Iteration backlogs include items from the product backlog that can conceivably be completed within the time period based on the team's capacity.



Incremental Delivery

- ✓ Enables value delivery sooner.
- ✓ Get higher customer value and increased market share.
- ✓ Allows partial delivery (or previews) to customers.
- ✓ Enables early feedback for the project team allowing for adjustments to the direction, priorities, and quality of the product.

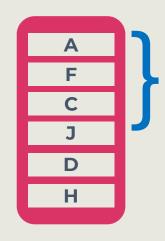




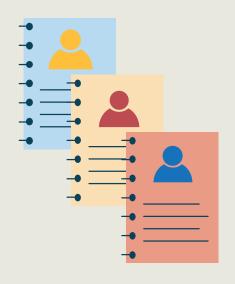
DECOMPOSING THE WORK

Prioritized List of "Features"

Product backlog



User stories



Tasks



- Decompose the work for no more than 2 Sprints
- The Developers will decide how to approach the work
- User stories with uncertainty may not be decomposed into tasks right away

One feature may equal one or more user stories.

USER STORIES

Short, simple descriptions of a feature

Told from the user's perspective

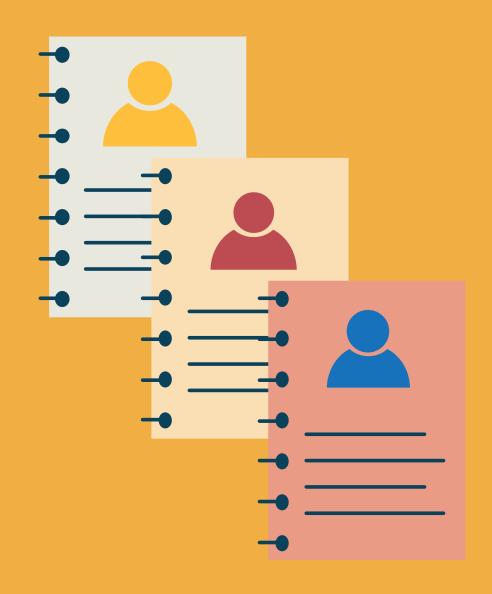
When large or complex, can be called "epics"

Sentence structure:

"As a <u>role</u>, I want <u>functionality</u>, so that <u>business</u> <u>benefit</u>."

Example:

"As a customer, I want my credit card information to be stored, so that I save time when checking out."



FORMATTING USER STORIES

INVEST criteria

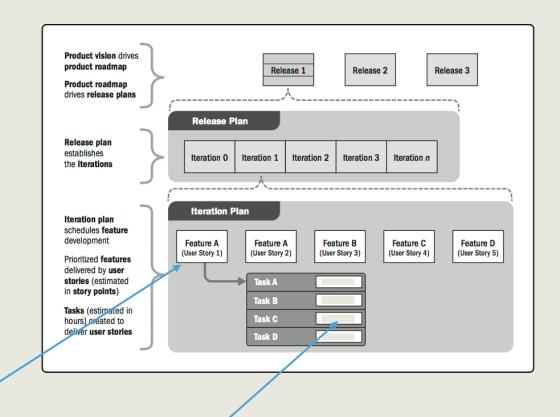
- Independent
- Negotiable
- Valuable
- Estimable
- Small
- Testable



User Stories

- ✓ Help teams focus on that value provided to the user.
- ✓ Suggest who will benefit from the work and how.
- ✓ Driven by description instead of technical specifications to give holistic view

User Story



Story Points



Course: Supporting Agile Team Performance (2021 Update)

Video: User Stories and Personas (3:49 run time)

More about...

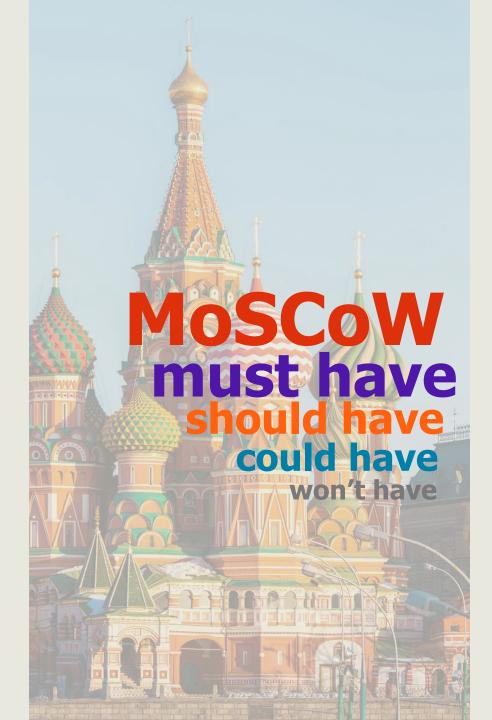
User Stories and Personas skillsoft.**

Prioritization Techniques to Determine Objectives

Use appropriate methods to learn the order of work that needs to be done.

These can include:

- ✓ Review product backlog
- ✓ Kano Model
- ✓ MoSCoW (MSCW) Analysis
- ✓ Paired Comparison Analysis
- √ 100 Points Method





Course: Deep Dive into the Project Scope (2021 Update)

Video: Agile Approach to Prioritizing Requirements (5:24 run time)

More about...

Agile Approach to Prioritizing Requirements

skillsoft.**

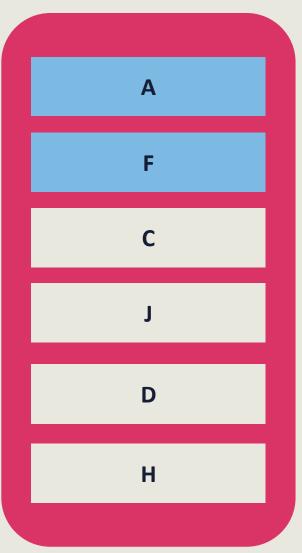
SPRINT PLANNING

Inputs from Executives, Team, Stakeholders, Customers, and Users **Daily Scrum** meeting **Every** 24 hours **Product** Scrum Owner Master 1-4 week **Sprint Sprint Review** Developers Task **Developers** breakout select as many R **Finished work** items as they С Sprint end date and can commit Sprint Team deliverable to deliver by **Backlog** do not change В end of Sprint **Product Sprint Planning Backlog Sprint Retrospective**

SPRINT PLANNING

- Includes all Scrum Team members
- Product Owner presents the updated backlog
- Developers estimate the work
- Work is selected from the product backlog to create the Sprint backlog.
- Developers commit to a set of deliverables for the Sprint
- Establish a "Definition of Done"
- Typically 2 hours per week of Sprint

Product Backlog



ROLES DURING SPRINT PLANNING

What about upper management and stakeholders outside of the Scrum Team?

Product Owner

- Presents the updated product backlog
- Answer questions about the backlog items
- Provide clarification on user stories
- Reprioritize backlog as appropriate
- Assist with defining Done



Developers

- Ask clarifying questions about backlog items
- Select items from the backlog
- Estimate the work
- Negotiate with the Product Owner
- Commit to a set of deliverables
- Assist with defining Done



Scrum Master

- Maintain Scrum best practices
- Adhere to the meeting time block
- Understand capacity of the Developers
- Assist with defining Done



Iterative Scheduling with a Backlog Process

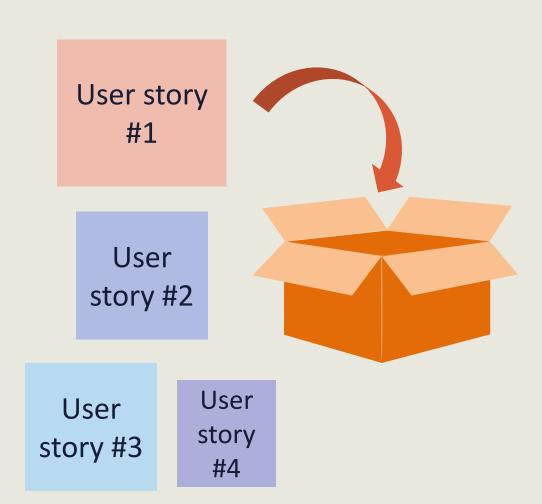
- ✓ Use progressive elaboration (rolling wave) to schedule activities
- ✓ Use a specific time window (e.g. two weeks)
- ✓ Define requirements in user stories
- ✓ Prioritize stories
- ✓ Select based on priority and time box
- ✓ Add remaining stories to backlog
- ✓ Construct later based on their priority





TIME BOXING

- User stories are estimated
 - Planned into the iteration
 - If it doesn't fit, it has to wait





AGILE ESTIMATING TECHNIQUES

Story points

- Relative estimation
- Arbitrary measure
- Usually used by scrum teams
- Express effort required to implement a story
- 3 items taken into consideration: level of complexity, level of unknowns, effort to implement.

RELATIVE SIZING

Quick and easy technique

Absolute value not considered

T-shirt sizing

Similar to Fibonacci

Sizes instead of numbers



AGILE ESTIMATING TECHNIQUES

Ideal days

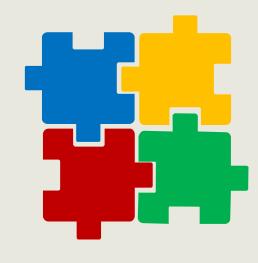
- Alternative to story points
- Units of time rather than arbitrary measure
- How long to build, test, and release functionality with ideal conditions



FACTORS IN ESTIMATING







Volume of work
How much effort?

Uncertainty
How risky is the work?

ComplexityHow complex is the work?

STORY POINTS

Relative sizing

- We aren't good at absolute estimate
- We are better at relative estimates

Not tied to days, hours, or dates

Removes pressure or emotion

Based on quantity of work, not speed Unique to a team

- Not comparable to the work of other teams
- Removes competition between teams

Reference for future estimates

Reserves and buffers are not necessary



While story points is the most commonly used metric, teams may choose any unit to represent work.



PLANNING POKER

- Uses Fibonacci sequence
- Each player receives a deck of cards
- Facilitator reads a user story
- On the count of 3, everyone shows their estimate
- Purpose is to build consensus
- Close to consensus, move on and round to higher number
- Scattered estimates, discuss and estimate again
- Estimates are approximates

Estimation Techniques

Planning poker estimates effort or relative size of development effort. Use a deck of cards with modified Fibonacci numbers to vote on user stories. Also called Scrum poker.

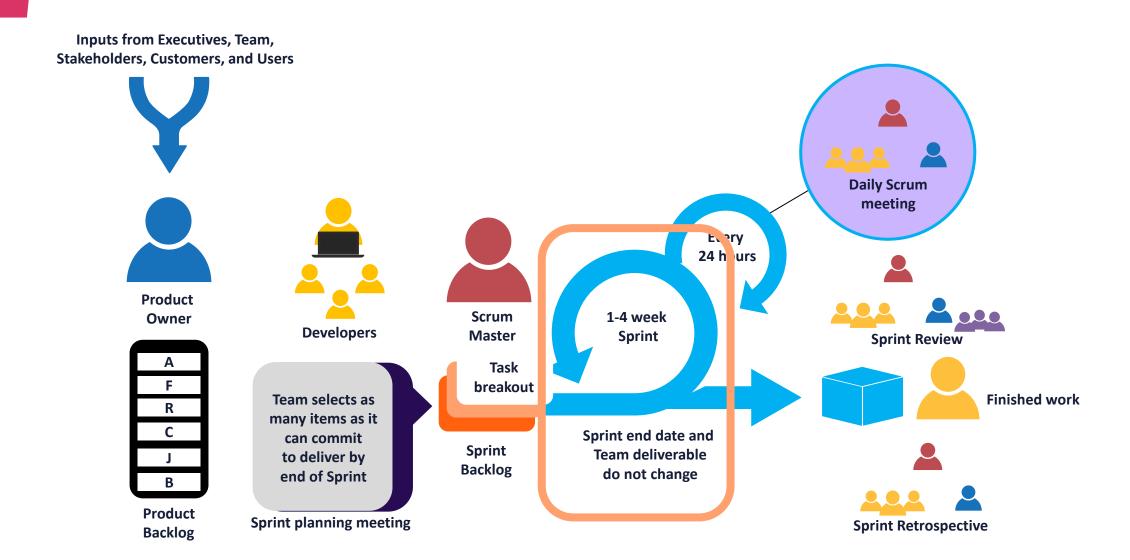
Story Pointing

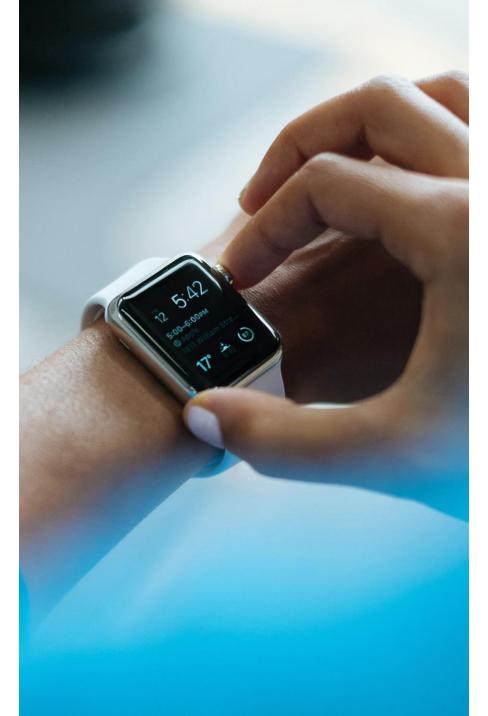
Use a relative measure e.g. numbers in the Fibonacci sequence—for the level of difficulty or complexity of a feature. Individuals assign story points.





EXECUTING THE SPRINT





Cycles and Timeboxes

Benefits:

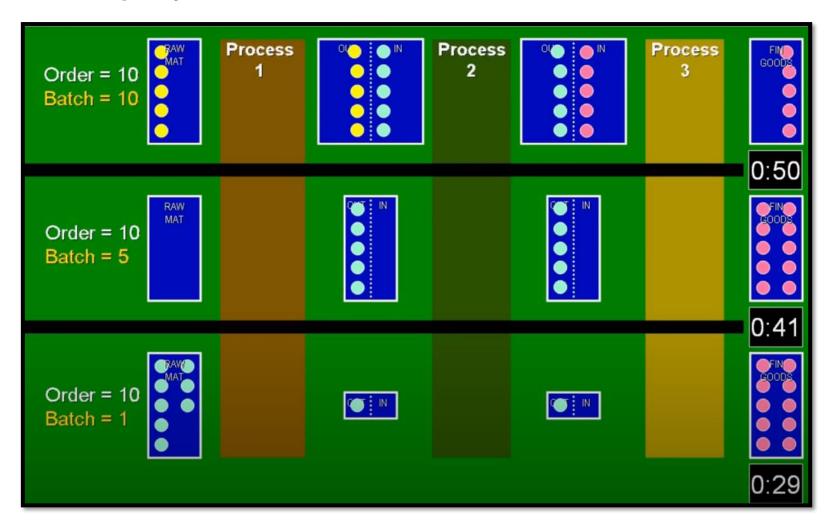
- ✓ Timeboxes allow for better telemetry over time.
- ✓ Timeboxes create a sense of urgency.
- ✓ Cycling the project through similar timeboxes provides progress measurements from one timebox to the next.
- ✓ Teams gain more predictable measurements that can communicate expectations of cycle times, throughput, and velocity.
- ✓ Organize work into release cycles and working time blocks.



Moreabout...

 One Piece Flow versus Batch Productio n

- Video: One Piece Flow versus Batch Production Lean Manufacturing (0:46 run time)
- Source: https://youtu.be/JoLHKSE8sfU





SPRINT CADENCE

Maintain consistency

- Cadence is like a regular heartbeat
- Sprint durations should be equal
- Sprints shouldn't exceed one month
- Determines frequency of stakeholder interaction

Considerations for a canceled Sprint

- Changing the cadence can disrupt the rhythm
- Shorten the Sprint by moving up the Sprint Review (if any) and the Retrospective
- Easier with shorter Sprints
- Product Owner will decide how cancelation impacts the cadence

TEAM VELOCITY

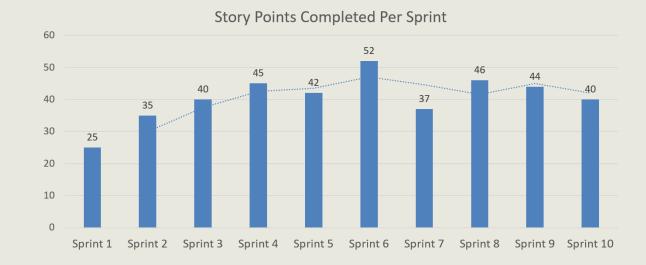
Velocity:

- Actual amount of development work completed per a certain amount of time or time-box
- Usually measured using a sprint as the time-box
- Used to estimate how quickly a certain amount of work can be completed
- Expressed as points (typically)
- Useful for forecasting

Use historical velocity data and take an average

If first time:

- Historical value from other projects
- Run a few iterations for a baseline

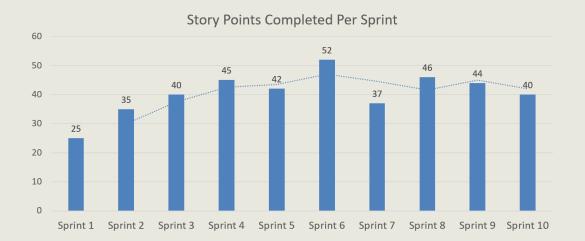


VELOCITY

VS

CAPACITY

Velocity is based on story points achieved historically



Capacity is based on team's availability to do the work



CANCELING A SPRINT

Only the Product Owner can make the decision

- Sprint goal becomes obsolete
- New constraint in the project environment
- Decision is based on value
- Something else is more urgent

Done Work

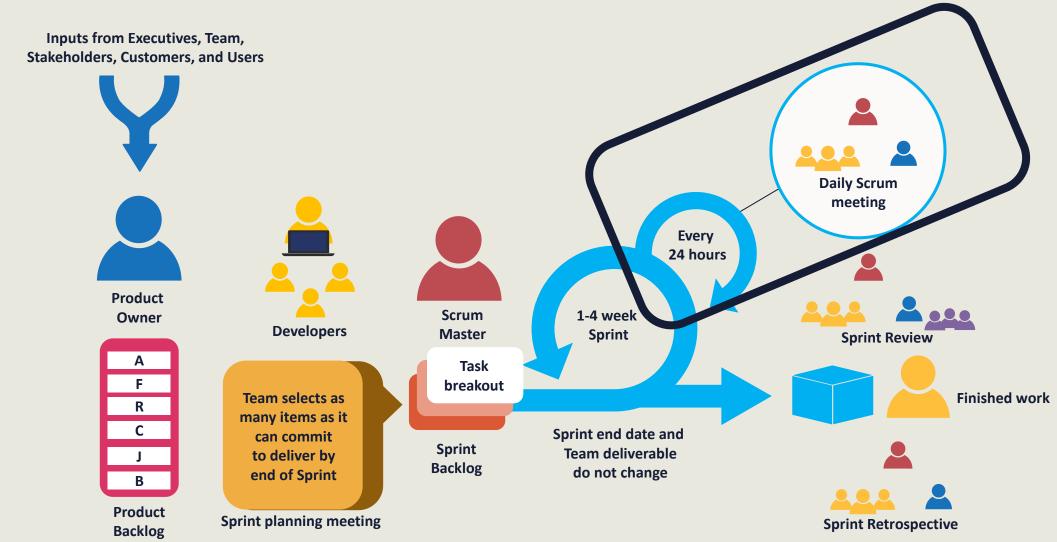
Determine if there is enough for a Sprint Review

Work in Progress (WIP)

Re-estimate incomplete work and return it to the product backlog



DAILY SCRUM OR STAND-UP





Daily Standup

- ✓ Conducted at a designated time (in the team "ground rules").
- ✓ Mandatory attendance of everyone in the Sprint.
- ✓ During the meeting, answer:
 - What's been done since the last meeting?
 - What needs to be done before the next meeting?
 - What does anyone need help with?



DAILY SCRUM

"What did I do yesterday?"
"What will I do today?"
"What are my roadblocks?"

- The Daily Scrum is held at the same time and same place each day
- The routine keeps things simple
- Although it is also known as the "Daily Standup", team members are not required to stand
- Inspect and adapt Sprint backlog
- Identify progress and remaining work against the Sprint goal
- Typically 15 minutes or less
- Reserve off-topic subjects for a separate discussion
- Developers own this event
- Scrum Master and Product Owner presence is helpful but not required



ROLES DURING THE DAILY SCRUM

What about upper management outside of the Scrum Team?

Scrum Master

- Promotes Scrum best practices
 - Stick to the time box
 - Team values
- Removes impediments
- Coaches the team
 - Problem solving
 - Roles and responsibilities
- Serve as a buffer for the team
- Attendance not required



Product Owner

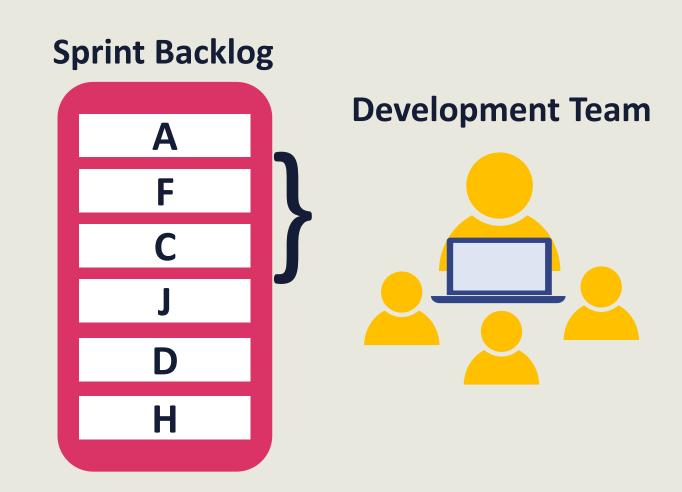
- Explains the value of each backlog item
- Must be easily accessible
- Answer questions
- Provide clarification
- Seek additional clarification from stakeholders
- Last minute reprioritization
- May cancel a Sprint
- Attendance not required

Developers

- Lead the conversation
- Answer three questions
 - What did I do yesterday?
 - What do I plan to do today?
 - Do I have any blockers?
- Inspect daily progress against the Sprint goal
- Ask clarifying questions about the user stories

SPRINT BACKLOG

- Belongs to the Developers
- Subset of the product backlog
- Used to achieve the goal for the current Sprint
- Highly detailed and visible
- The Developers decide how to approach and select the work
- Developers hold themselves and each other accountable
- Although tasks are divided, each Sprint backlog item is owned by the entire group
- May need to be renegotiated with Product
 Owner in order to meet the Sprint Goal

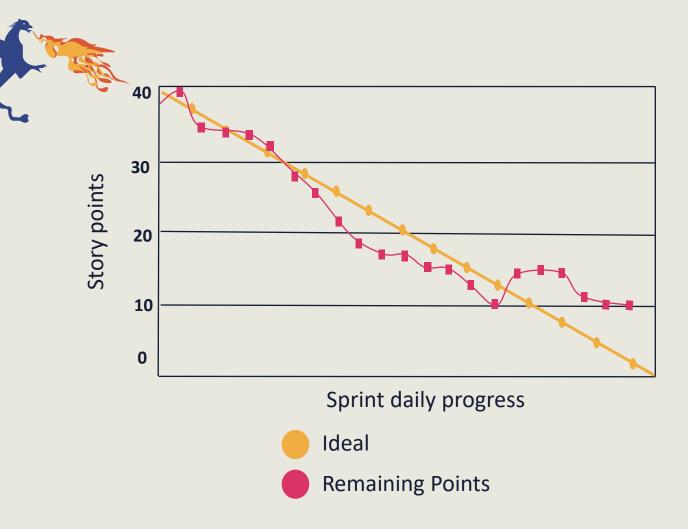


PERFORMANCE TRACKING: BURN CHARTS

Burndown and burnup charts

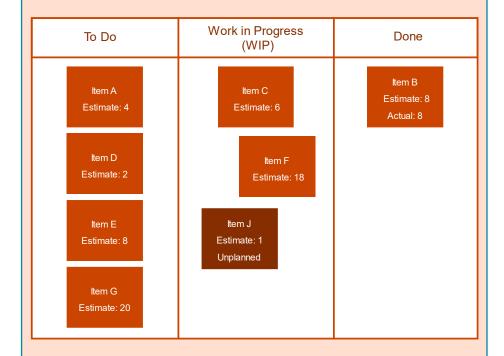
"Information Radiators"

- Generic term for a highly visible information display
- Graphs, charts, data dashboard
- Communication tool
- Shows remaining work for the Sprint
- Trend line shows the running average, and what will likely happen if progress continues at this rate



Task Boards

- ✓ Visualize work and enable the team and stakeholders to track progress as work is performed.
- Promote visibility and maximize efficiency and accountability.
- Examples: Kanban boards, to-do lists, procedure checklists, and Scrum boards.





On-Demand Scheduling

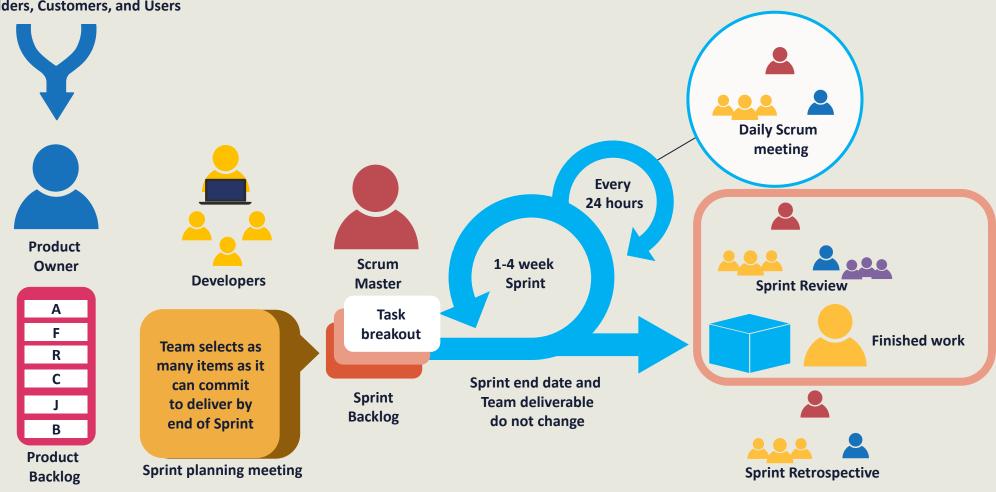
- Does not use traditional schedules
- ✓ Team members "pull" work from a queue when available
- Based on Kanban and Lean methodologies
- Provides incremental business value
- ✓ Levels out work of team members
- Works best when activities can be divided into equal amounts
- Does not work well with projects comprised of complex dependency relationships





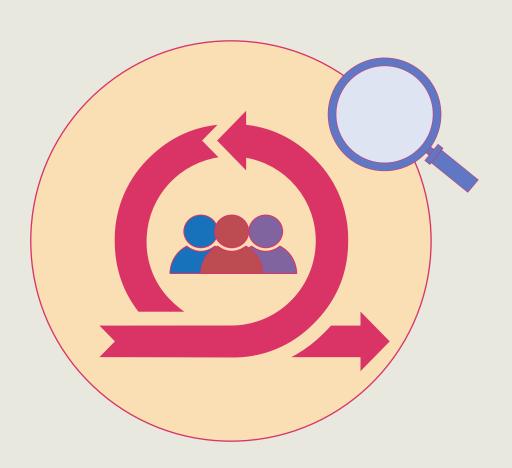
SPRINT REVIEW

Inputs from Executives, Team,
Stakeholders, Customers, and Users



SPRINT REVIEW

- Occurs at the end of a Sprint
- Participants
 - Developers
 - Scrum Master
 - Product Owner
 - Stakeholders (invited by Product Owner)
- Developers demos the product to product owner and possibly stakeholders
- Scrum Team and stakeholders inspect deliverables
- Elicit feedback and foster collaboration
- Team and product owner adapt product backlog if necessary
- Typically 1 hour per week of Sprint



ROLES DURING SPRINT REVIEW

Product Owner

- Presents the product backlog
- Explains progress
 - What was completed
 - Planned items that were not done
- Lead discussion of what to work on next



Scrum Master

- Facilitates the event
- Promotes adherence to the time box
- Clarify roles and responsibilities



Developers

- Demonstrates new product increment
- Answers questions about the product
- Discuss challenges



Stakeholders

- Invited by Product Owner
- Try the new product increment
- Provide feedback

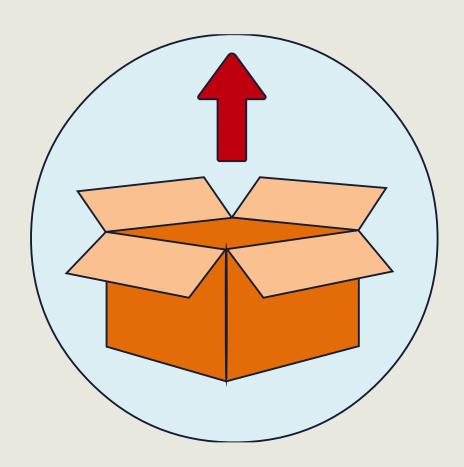


SMALL RELEASES

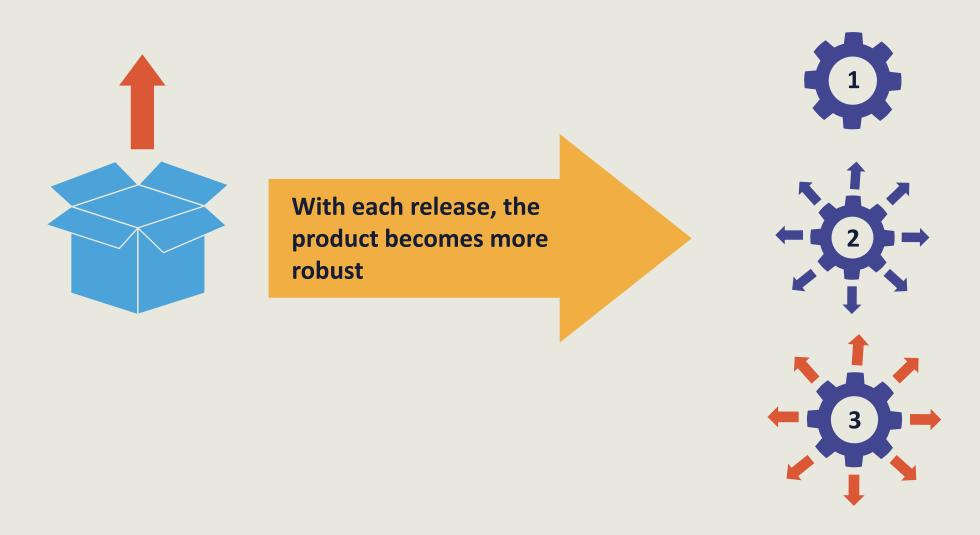
Demonstrates progress

Increases visibility to the customer

Smaller increments means rapid deployments



PRODUCT SCOPE EVOLVES





"POTENTIALLY" RELEASABLE PRODUCT INCREMENT

Complete

Acceptance Criteria Met

Definition of Done

Tested

Avoid escaped defects

Deliverable Now

No remaining work, including user instructions, etc.

Reasons the Product Owner might delay release

Costs associated with release

- Marketing expenses
- Additional customer support
- Customer's willingness to adapt
- **Inadequate Definition of Done**

Assess Product Backlog

✓ Use backlog assessments and refinements to explore alternatives to overcome or avoid risks, such as removing work items or blockages.



Continually assess the backlog for potential impediments, obstacles, and blockers.



Evaluate impediments against pending work.



Also assess scheduled activities and other lists of work items.

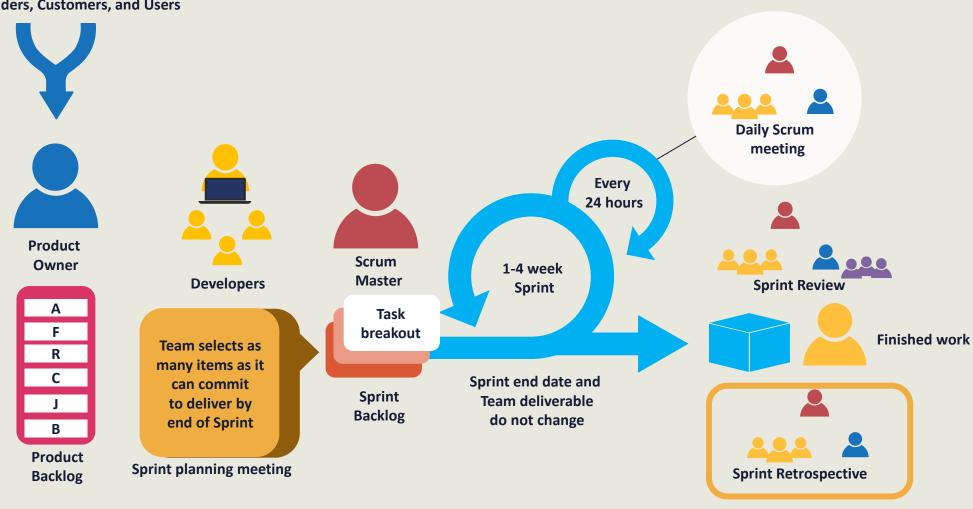


The team and business stakeholders must assess the work backlog work in terms of value and priority.



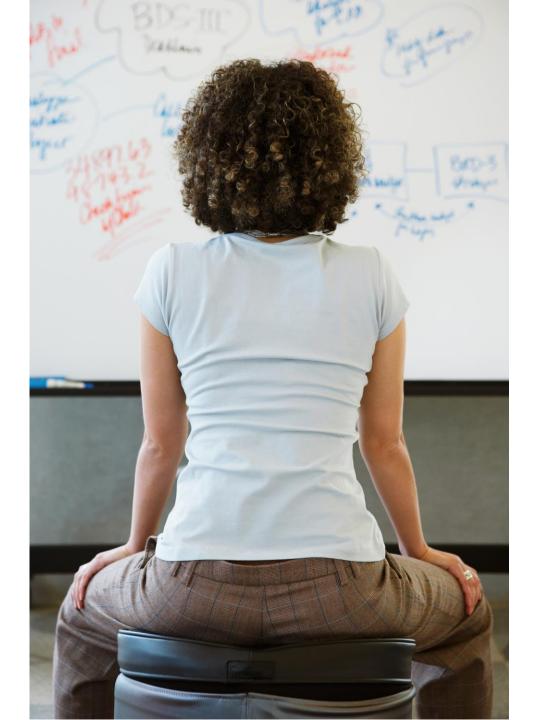
SPRINT RETROSPECTIVE

Inputs from Executives, Team, Stakeholders, Customers, and Users



Retrospective

- ✓ A regular check on the effectiveness of quality processes
- ✓ Look for the root cause of issues then suggest trials of new approaches to improve quality.
- ✓ Evaluate any trial processes to determine if they are working and should be continued, need adjusting or discontinued.





SPRINT RETROSPECTIVE

Participants

- The Scrum Team
 - Developers
 - Scrum Master
 - Product Owner

Evaluate the last Sprint

- People
- Processes
- Tools

Plan improvements for next iteration

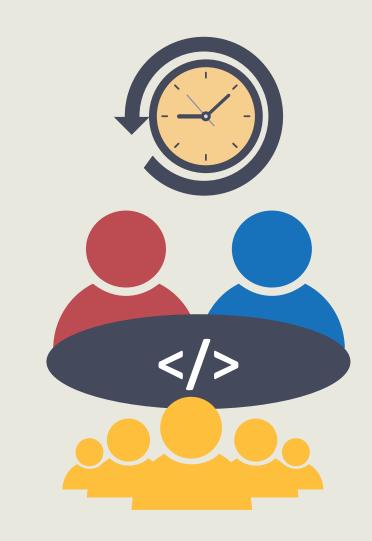
Examples:

Do we need to change our Definition of Done?

Are we communicating well?

Do we need to build any of our skills?

Typically .75 hours per week of Sprint



ROLES DURING THE RETROSPECTIVE

What about upper management and stakeholders outside of the Scrum Team?

Scrum Master

- Promotes Scrum best practices
 - Stick to the time box
 - Reminder of team values
- Facilitates the meeting
- Introduces team-building exercises
- Guides problem solving and goal setting
- Participates in the discussion
- Commits to continuous improvements



Product Owner

- Attends as a member of the Scrum Team
- Participates in the discussion
- Commits to continuous improvements



Developers

- Attend as a members of the Scrum Team
- Participates in the discussion
- Commits to continuous improvements



Retrospective



Set the Stage

Check-in activities to engage the team



Gather and Share Data

- Team Performance metrics
- Earned Value Analysis



Generate Insights

- What's working?
- Where are challenges?
- Problem analysis

Make Decisions



Agree on a few improvements or changes to try in the subsequent iteration

Close

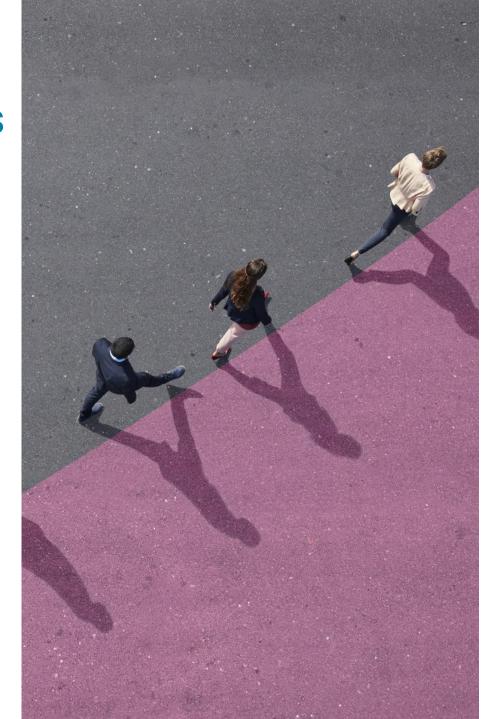
- New information
- Appreciation
- ✓ Thanks





Implement Results of Retrospectives/Lessons Learned

- ✓ Rank the opportunities by importance and urgency.
- ✓ Incorporate tasks necessary to realize the improvements.
- ✓ Apply ideas to the team environment.





GUIDELINES

Conduct a Retrospective

- Prepare some ideas or areas of focus in case the team needs inspiration or ideas.
- Make two columns on a board: "What Went Well" and "What Could Be Improved".
- Ask attendees to identify items that went well in the iteration and add them to the first column.
- Ask them to identify items that could be improved and add them to the second list.
- Allow each participant to identify the reason for the improvement.
- Moderate a conversation about common items that need improvement and mark those.
- Narrow the list down to a few areas for improvement that will bring value in the next Sprint.
- Get team consensus on the plan improvement.
- Update these tasks to the Product Backlog after a discussion with the Product Owner.
- Implement changes.



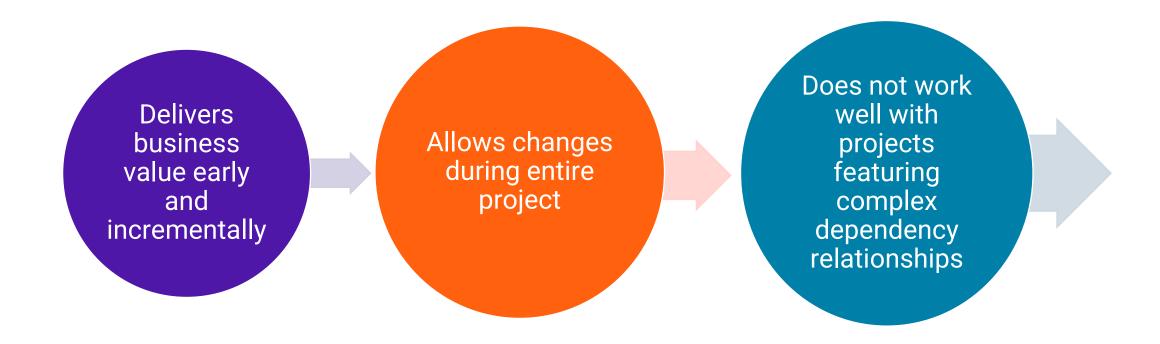


Review Slides & Key Terms





Iterative Scheduling with Backlog





Overview - Agile Ceremonies





More Agile Ceremonies

Hold daily **standups**—short (10-15 minute) daily meetingsfor the team to reaffirm commitment to objectives for the iteration, identify potential blockers, and coordinate the day's work.

In a **Sprint Review** at the end of each iteration, the Product Owner and other customer stakeholders review progress and receive feedback for that iteration.

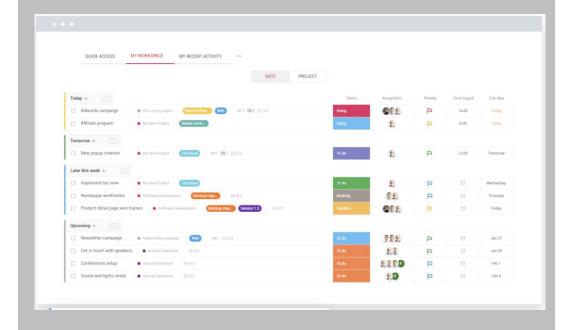
A Scrum Master facilitates a Sprint Retrospective for the team to identify improvements. They review the team's processes and practices and identify ways to improve performance and collaboration.



Project Artifact Examples

Artifacts unique to agile projects:

- ✓ Product Backlog
- ✓ Product Increment
- ✓ Product Roadmap
- ✓ Product Vision Statement
- ✓ Release Plan
- ✓ Sprint Backlog





Key Terms

Tool and Technique	Description
Definition of Done	Checklist of required criteria for a deliverable to be considered ready for customer use.
Definition of Ready	Checklist for a user-centric requirement with all required information to begin work.
Acceptance Criteria	A set of conditions to meet before acceptance of deliverables.
Iteration/Sprint Reviews	Interval at or near the conclusion of a timeboxed iteration when the project team shares and demonstrates the work produced during the iteration with stakeholders.
Variance Analysis	A technique for determining the cause and degree of difference between the baseline and actual performance.
Trend Analysis	An analytical technique that uses mathematical models to forecast future outcomes based on historical results.



Key Terms

Туре	Description
Information Radiators	Big visual boards to display in high traffic public locations about the project and the advancement of the project. The aim is to radiate information to all about the project work.
Burndown Chart	A graph to show the progress by plotting the burning down of work during an iteration or other time period.
Burnup Chart	A graph to show the progress and gains made by the project team over time.
Earned Value Management Reports	Graphs and values based on the earned value management (EVM) equations.
Variance Analysis Reports	Graphs and their analysis comparing actual results to expected results.
Work Performance	The physical or electronic representation of work performance information compiled in project
Reports	documents, intended to generate decisions, actions, or awareness.
Quality Reports	Charts and reports based on the quality metrics collected.
Dashboards	Physical or electronic summaries of the progress, usually with visuals or graphics to represent the larger data set
Task Boards	Physical or electronic depictions of the work that must be done and their current state.



NEXT STEPS

- 1. Prepare and submit your application
 - View Exam Application and Tips video to guide you.
- 2. Pick an exam target date
- 3. Set up a weekly **study schedule** for yourself
 - Approx. 5-10 weeks
- 3. Research unfamiliar concepts using the:
 - Student Manual,
 - PMBOK Guides,
 - PMI Standards+, and
 - Internet.
- 4. Every week **practice answering** mock exam **questions**, even if they begin to repeat.

- 5. **You are ready** when you can consistently answer approximately 80% of the questions correctly.
- 6. **Schedule** and pay for **your exam**
- 7. Rewatch the video on exam tips.
- 8. Do not cram the night before. **Get a good night's rest.**
- **9. Post your success on LinkedIn** tagging people and organizations that helped you succeed in achieving your certification.
- **10. Enjoy your career** as a Project Management Professional!

DAILY BOOTCAMP SURVEY

Please share your thoughts.

At the end of each Bootcamp session please let us know how we are doing. Your feedback helps us to offer the best possible Bootcamp experience.

Thank you for attending Session 5!