



PMP® EXAM PREP

PMI Authorized
Training Partner

BOOTCAMP

Session 5

Part 2

Class will resume at 2:30pm EST

Instructors:

Barb Waters, MBA, PMP®

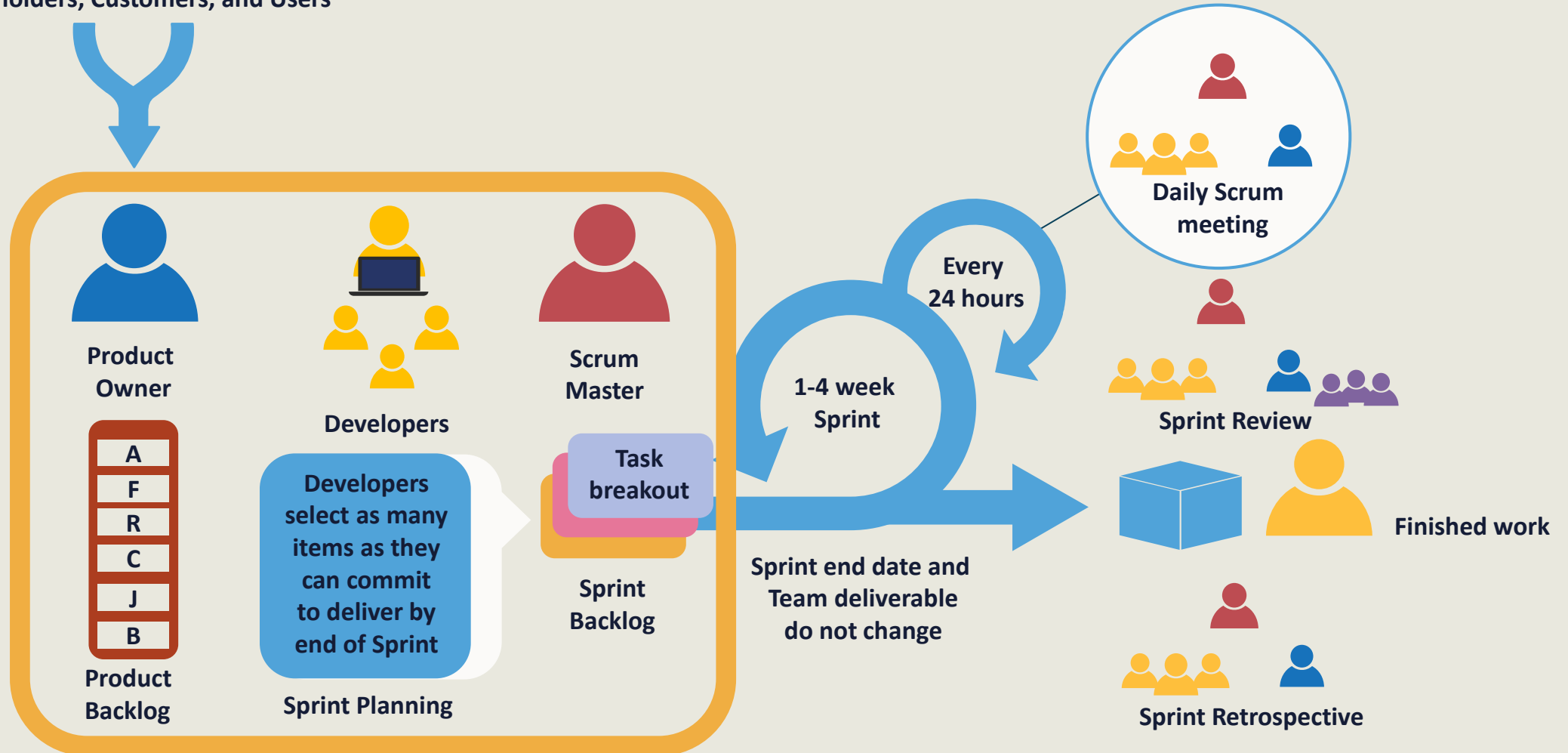
Susan Daniels, MBA, PMP®

PMP® Exam Prep

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

SPRINT PLANNING

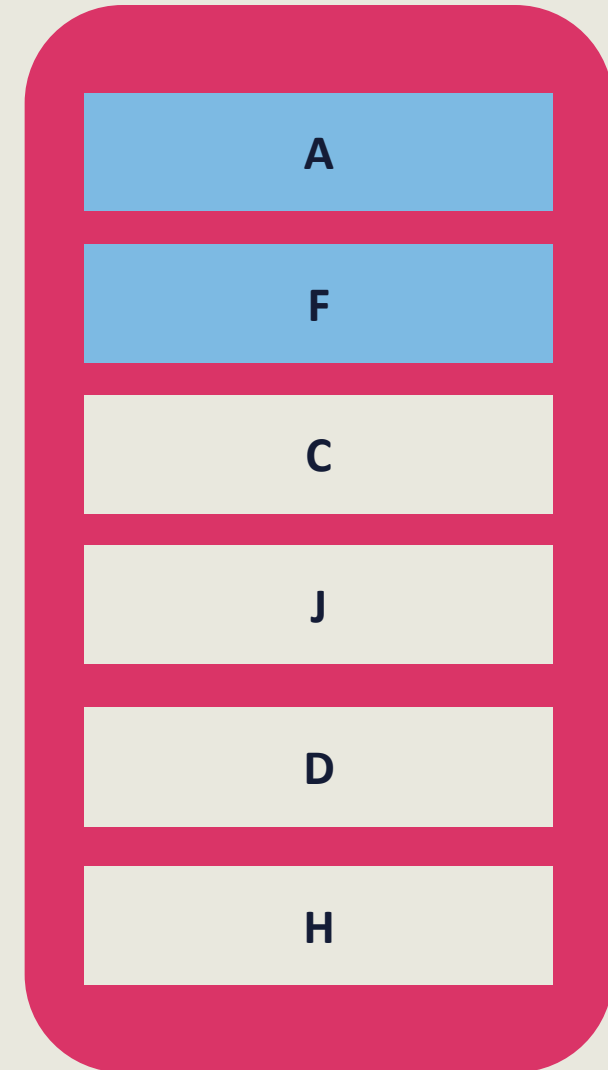
Inputs from Executives, Team,
Stakeholders, Customers, and Users



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

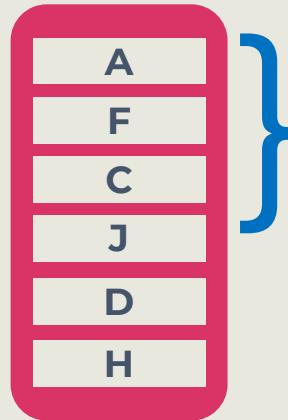


DECOMPOSING THE WORK

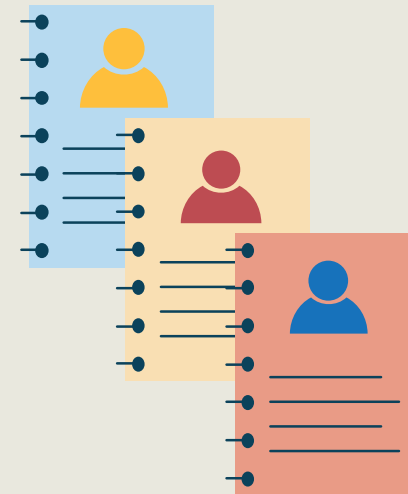
- Decompose the work for no more than 2 Sprints
- The Developers will decide how to approach the work
- User stories with uncertainty may not be decomposed into tasks right away

Prioritized Features
“User Story Backlog”

Product backlog



User stories



Tasks



One feature may equal one or more user stories.

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.

A product backlog is a list of the expected work to deliver the product.

Iteration backlog

- ✓ Teams must estimate effort and understand business priorities.

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



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



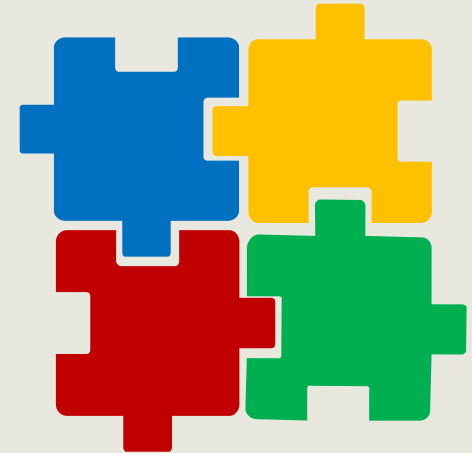
FACTORS IN ESTIMATING



Volume of work
How much effort?



Uncertainty
How risky is the work?



Complexity
How 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

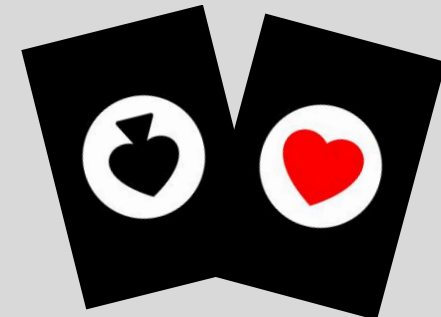
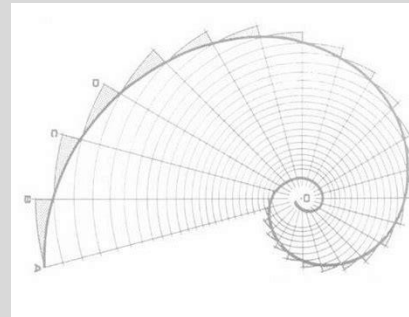
- Uses Fibonacci sequence
- Each player receives a deck of cards
- Facilitator reads a user story
- On the count of 3, everyone shows their estimate
- Purpose is to build consensus
- Close to consensus, move on and round to higher number
- Scattered estimates, discuss and estimate again
- Estimates are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



TEAM VELOCITY

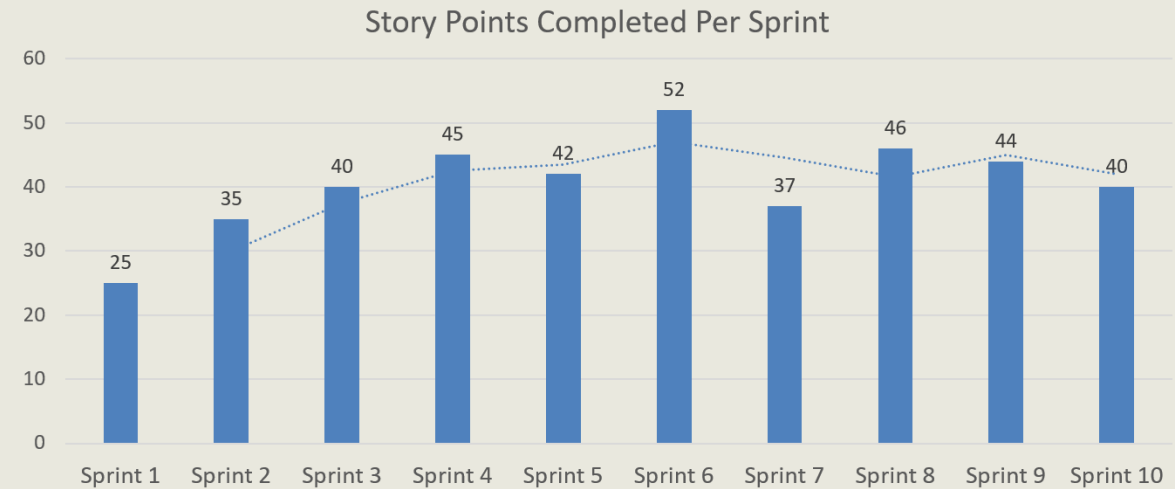
Velocity:

- 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



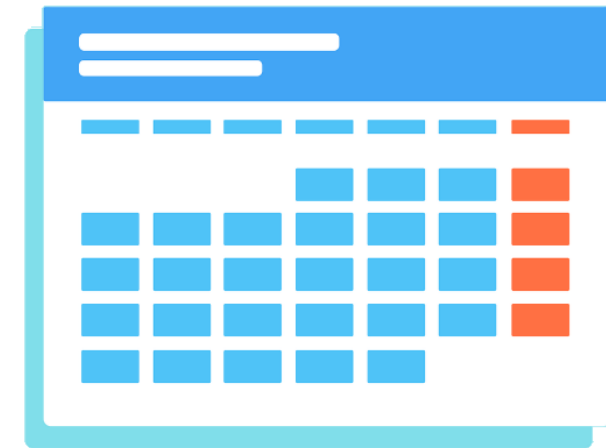
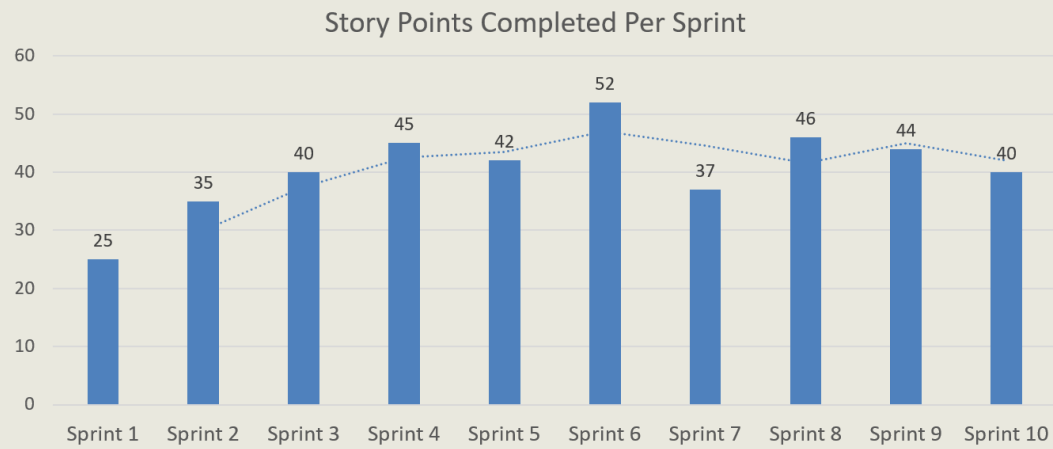
VELOCITY

VS

CAPACITY

Velocity is based on story points achieved historically

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



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

Breadth of knowledge

Depth of knowledge



**More
about...**

Course: Engaging Team Members and Stakeholders (2021 Update)
Video: Team Member Skill Sets (3:54 run time)

Team Member Skill Sets

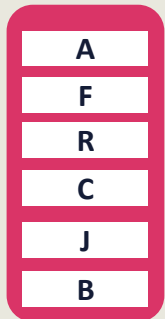
skillsoft[®]

DAILY SCRUM OR STAND-UP

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



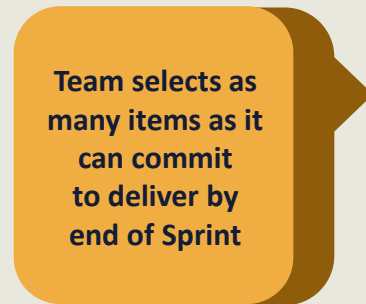
Product
Owner



Product
Backlog



Developers



Sprint planning meeting



Scrum
Master

Task
breakout

Sprint
Backlog

1-4 week
Sprint

Sprint end date and
Team deliverable
do not change

Every
24 hours



Sprint Review



Finished work



Sprint Retrospective



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





SELF-ORGANIZED AND SELF-MANAGING

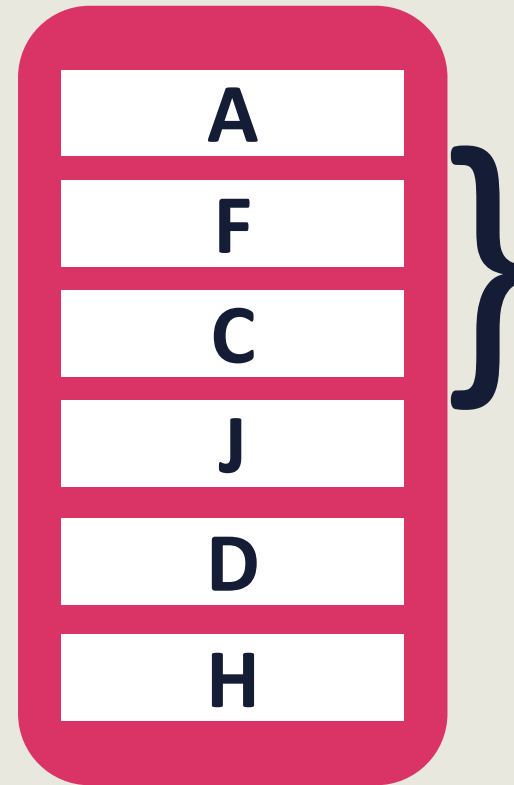
- Developers decide how they will be organized
- The Developers play a strong role in the selection of new team members
- This is also true for multiple teams working together
- Self-organization benefits:
 - Personal accountability
 - Commitment
 - Innovation and creativity



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

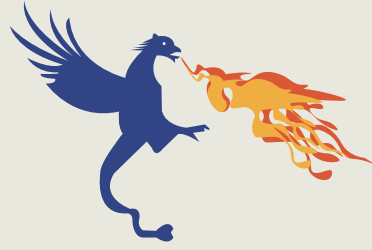
Sprint Backlog



Development Team



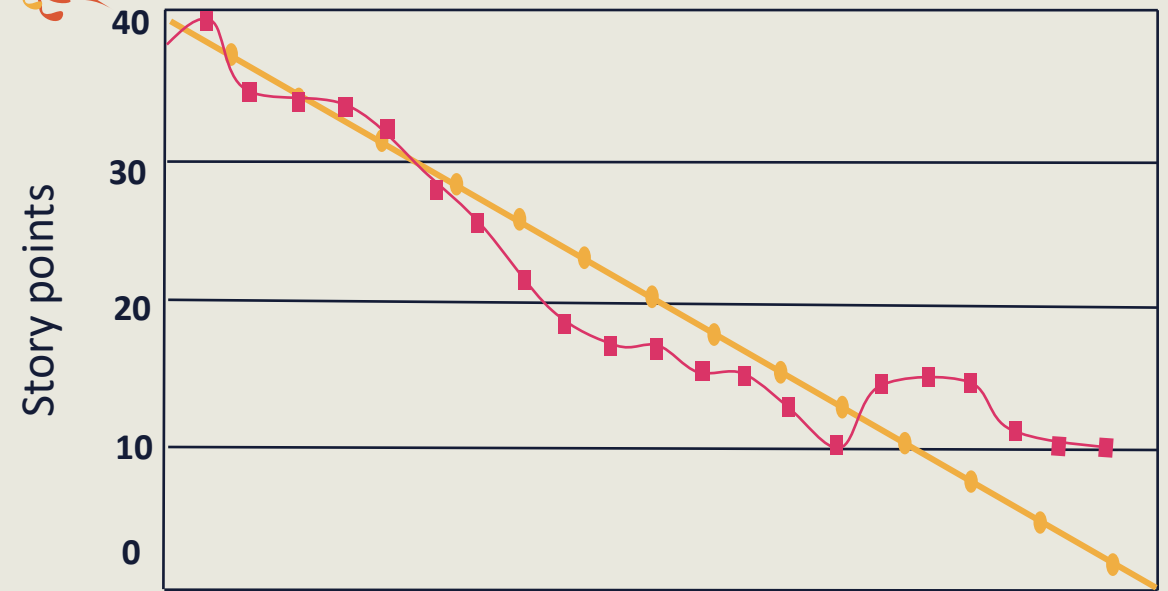
PERFORMANCE TRACKING: BURN CHARTS



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



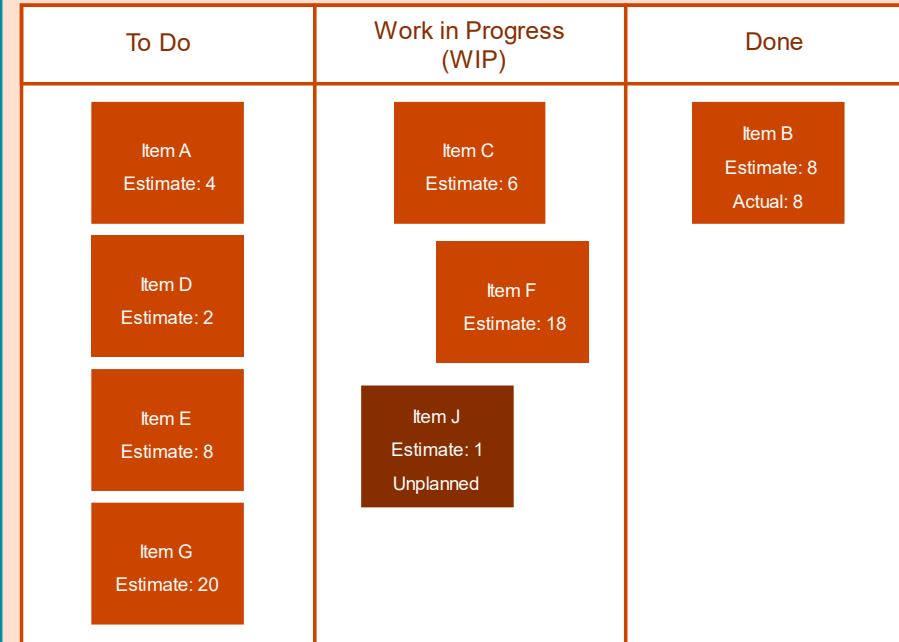
Ideal



Remaining Points

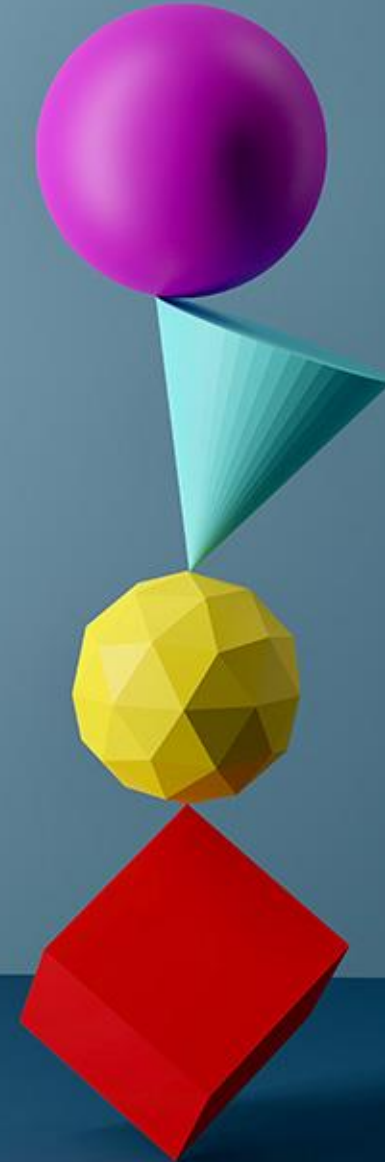
Task Boards

- ✓ 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.



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

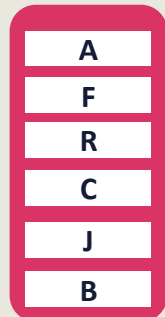


SPRINT REVIEW

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



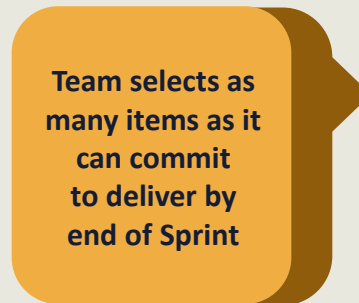
Product Owner



Product Backlog



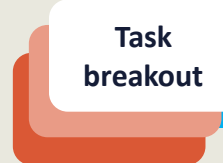
Developers



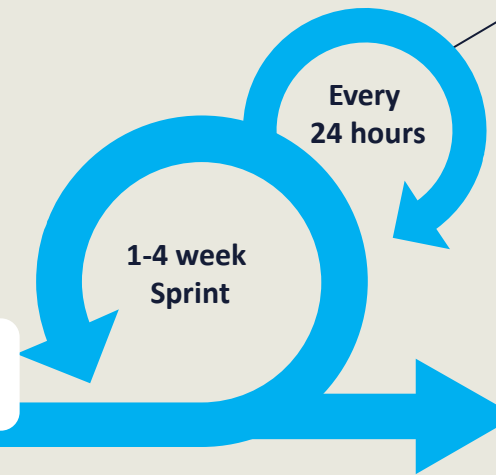
Sprint planning meeting



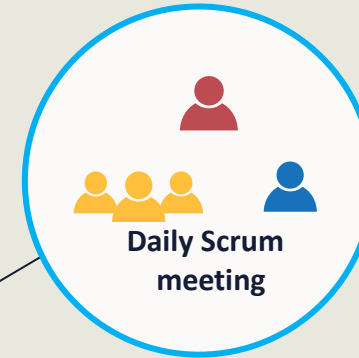
Scrum Master



Sprint Backlog

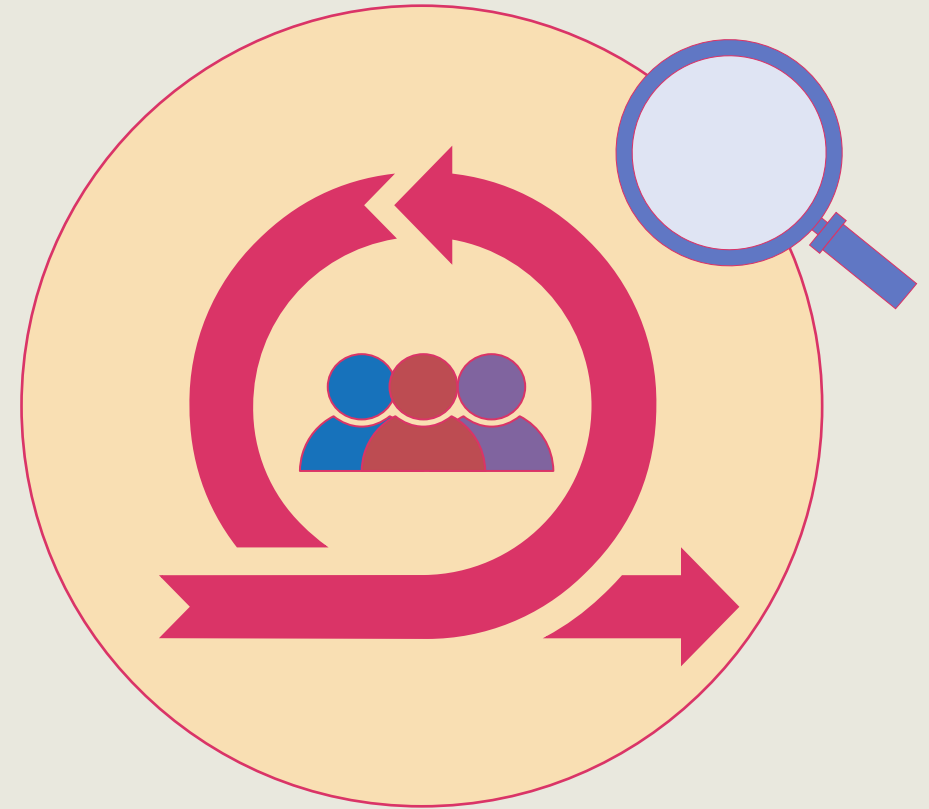


Sprint end date and
Team deliverable
do not change



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



Developers

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



Scrum Master

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



Stakeholders

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

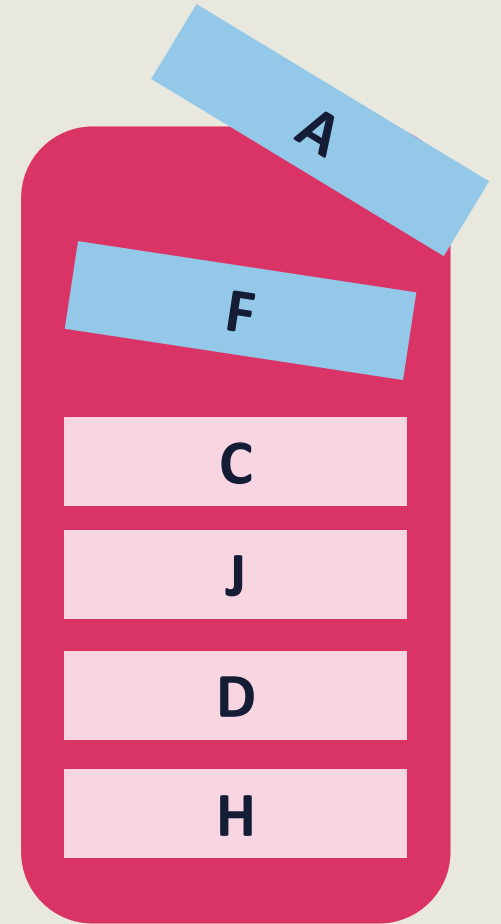


Tools and Techniques for Verifying Scope

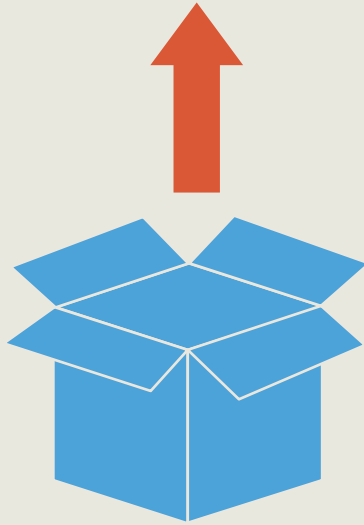
Tool and Technique	Description
Definition of Done	Checklist of required criteria for a deliverable to be considered ready for customer use.
Definition of Ready	Checklist for a user-centric requirement with all required information to begin work.
Acceptance Criteria	A set of conditions to meet before acceptance of deliverables.
Iteration 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.

PRODUCT INCREMENT

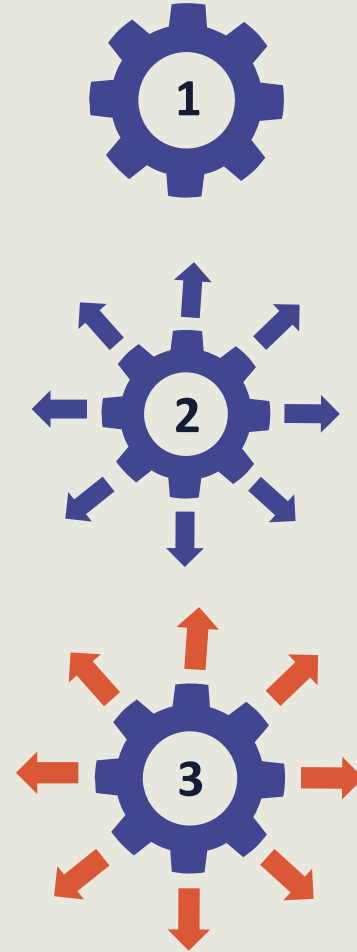
- The result of the latest Sprint
- Demo during Sprint Review
- Must meet the “Definition of Done” established during planning



PRODUCT SCOPE EVOLVES



With each release, the product becomes more robust



SPRINT REVIEW

- Informal gathering
- Elicit feedback
- Does it solve a problem?
- Does it serve a purpose?
- Is it user friendly?





“POTENTIALLY” RELEASABLE PRODUCT INCREMENT

Complete

Acceptance Criteria

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**

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





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

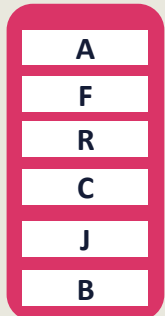
- Changing the cadence can disrupt the rhythm
- Shorten the Sprint by moving up the Sprint Review (if any) and the Retrospective
- Easier with shorter Sprints
- Product Owner will decide how cancelation impacts the cadence

SPRINT RETROSPECTIVE

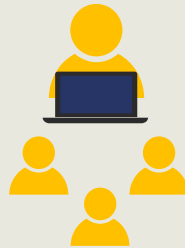
Inputs from Executives, Team,
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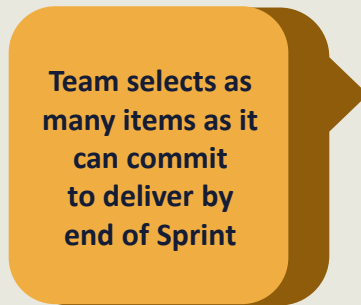
Product
Owner



Product
Backlog



Developers



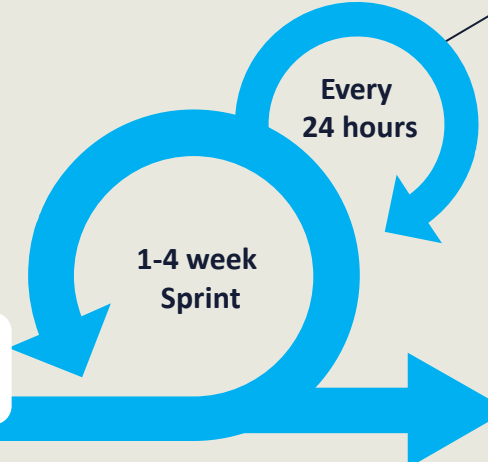
Sprint planning meeting



Scrum
Master

Task
breakout

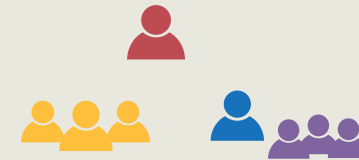
Sprint
Backlog



Sprint end date and
Team deliverable
do not change



Daily Scrum
meeting



Sprint Review



Finished work



Sprint Retrospective

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

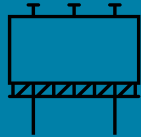


Retrospective

- ✓ 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.



Retrospective



Set the Stage

Check-in activities to engage the team



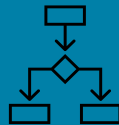
Gather and Share Data

- ✓ 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

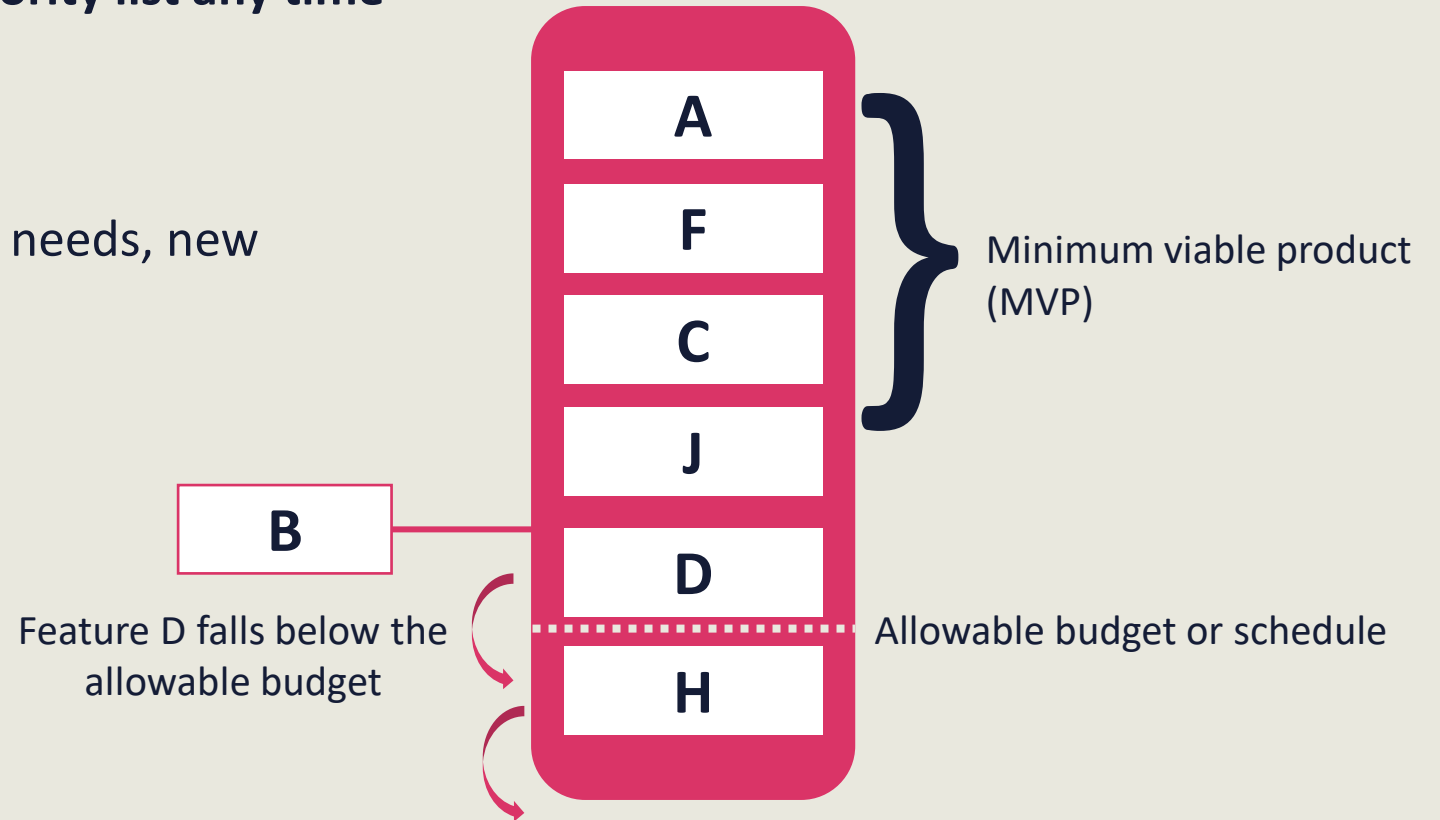
- ✓ New information
- ✓ Appreciation
- ✓ Thanks



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 learning, and value



Assess Product Backlog

- ✓ Work to be done is also called a 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.

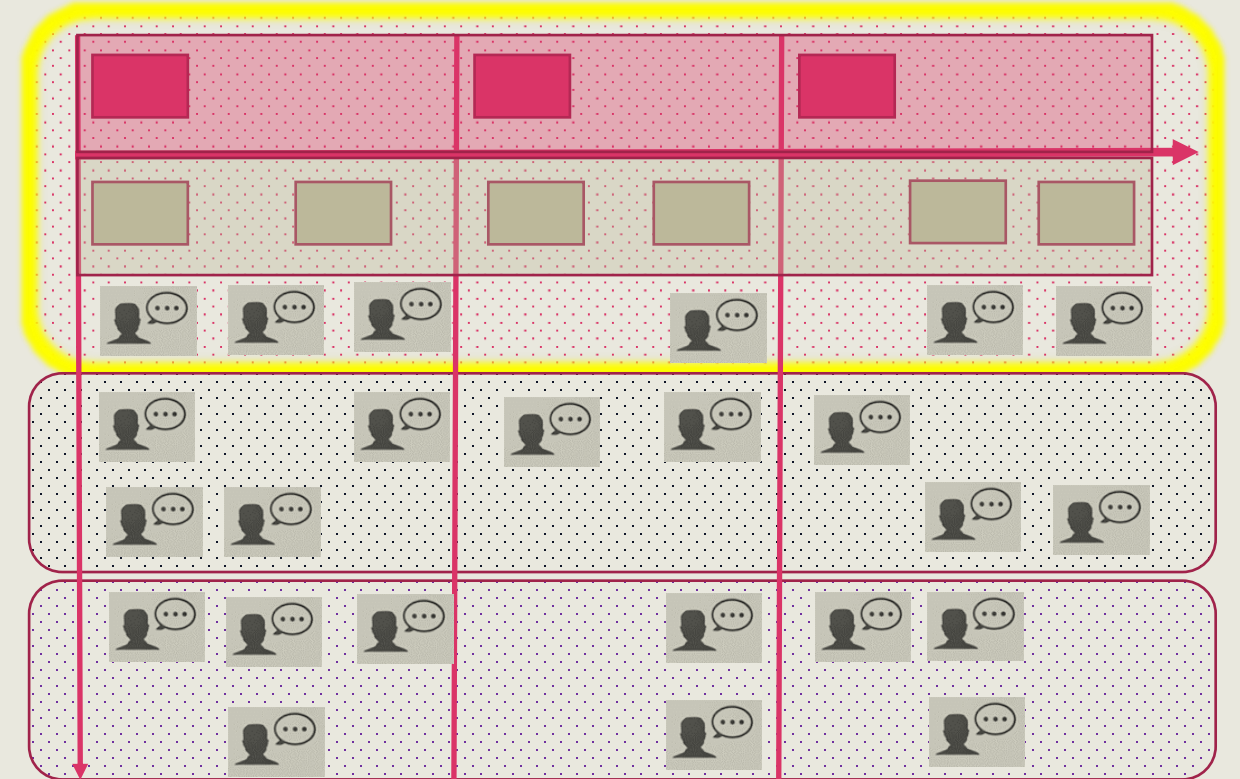
PRODUCT ROADMAP

- Story map with timing of deliverables
- Considers priorities against Developers velocity
- Subject to change as backlog is refined
- With each release the product becomes more robust

1st release

2nd release

3rd release

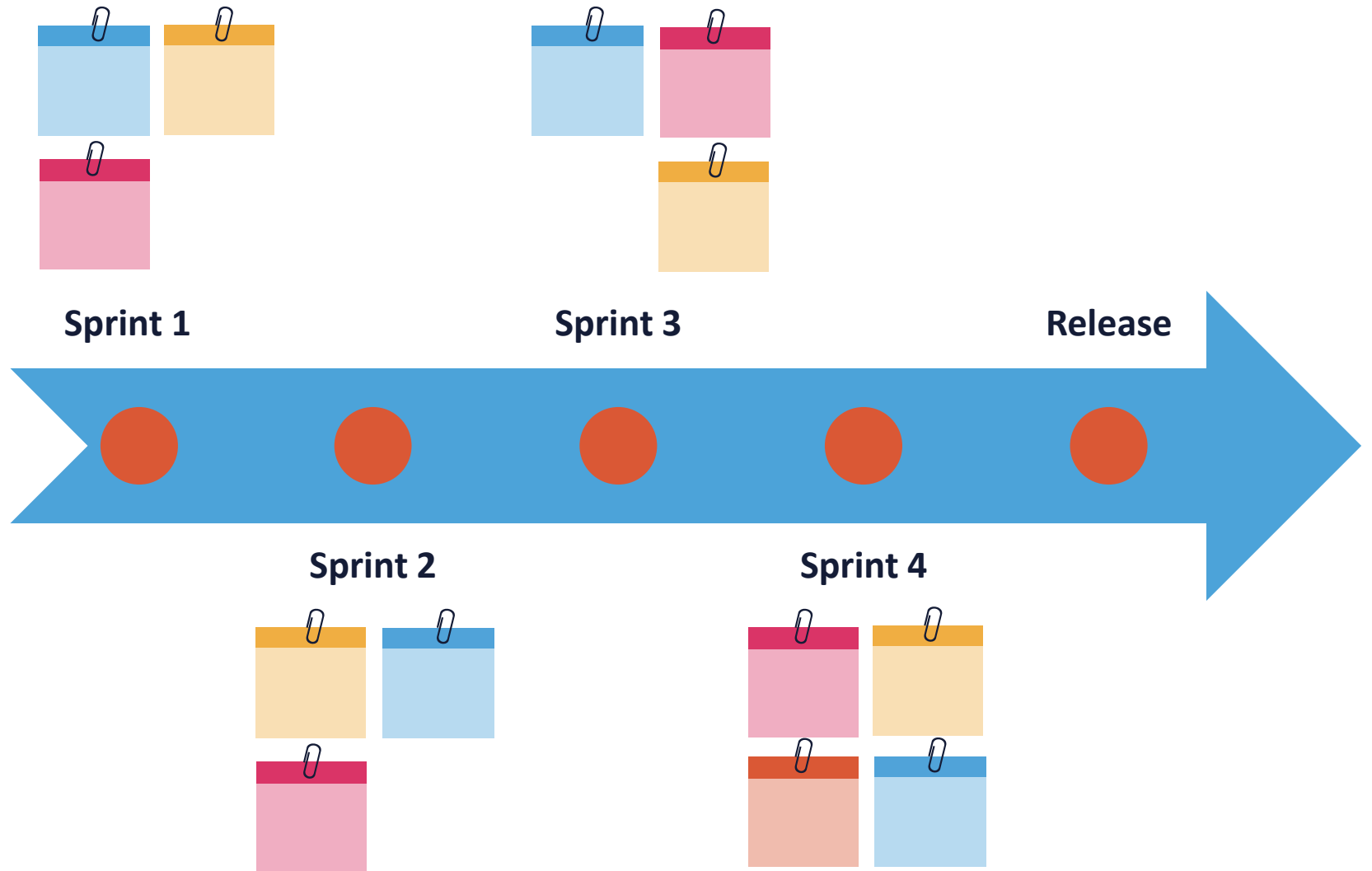




Product Roadmaps

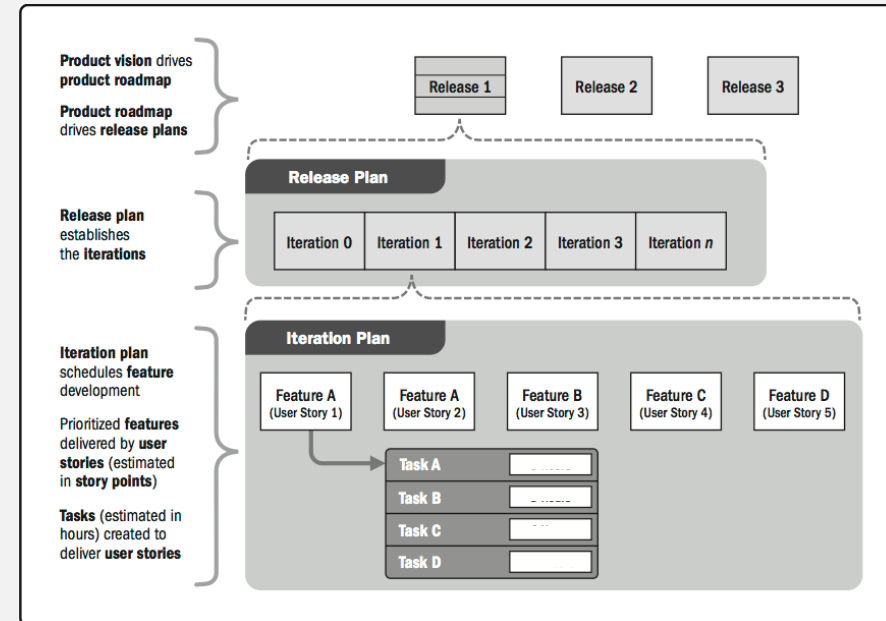
- ✓ Vary in appearance and presentation.
- ✓ Display the **strategy** and **direction** of the product and the **value** it will deliver.
- ✓ Lead with the overarching vision of the product.
- ✓ Are progressively **elaborated over time** with information and work inputs and refinement of vision.
- ✓ Use themes (goals) to **provide structure and associations**.
- ✓ Provide **short-term** and **long-term** visualization of the product.

SAMPLE RELEASE PLAN



Agile Release Planning

- ✓ High-level summary timeline of the release schedule based on product roadmap and vision for the product's evolution.
- ✓ Determines the number of iterations or sprints in the release
- ✓ Allows product owner and team to decide:
 - how much needs to be developed
 - how long it will take to have a releasable product based on business goals, dependencies, and impediments.



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.



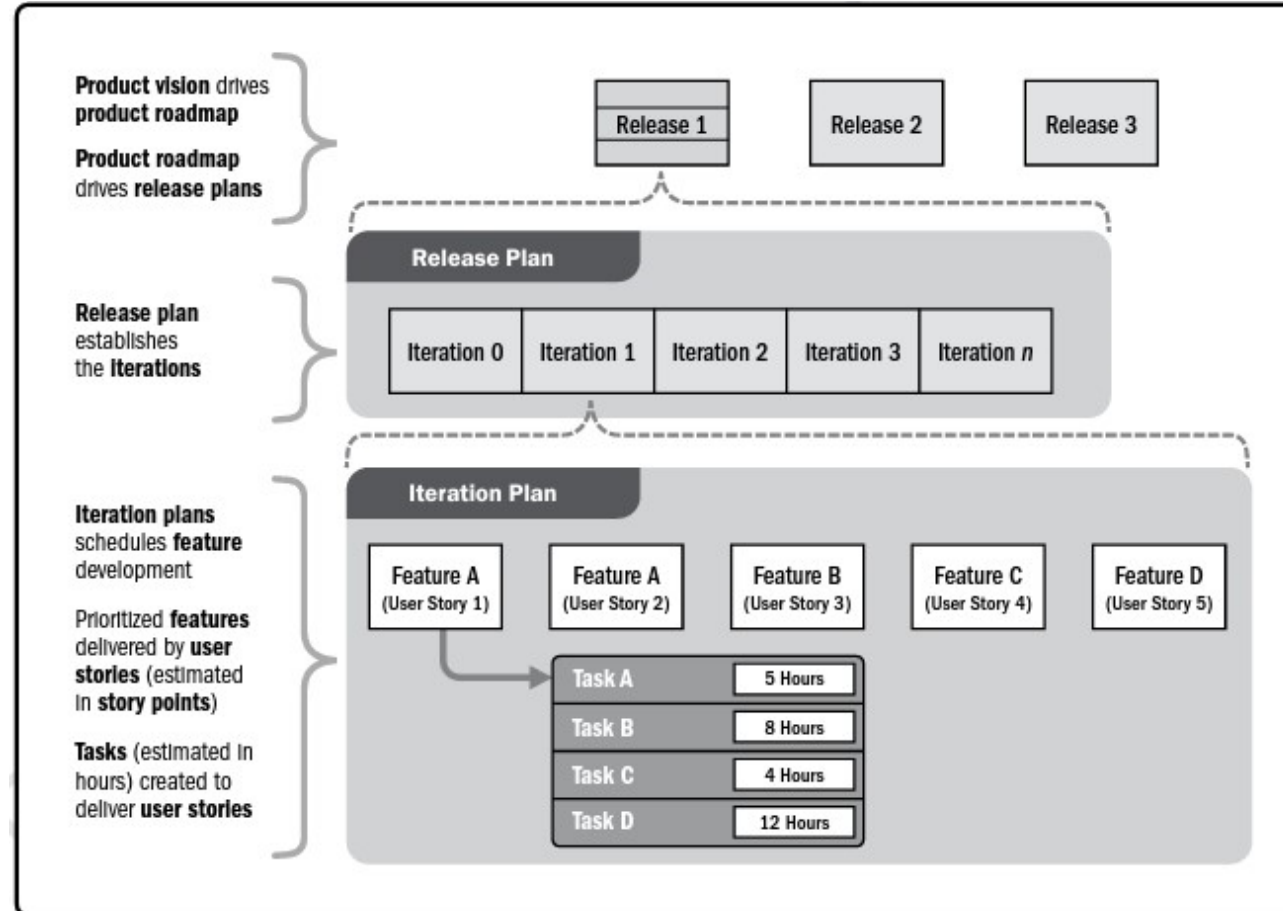


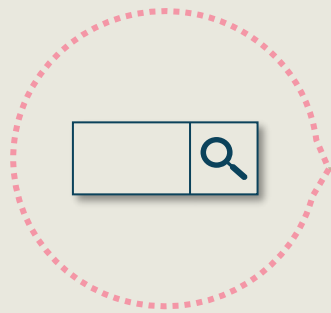
Figure 6-20. Relationship Between Product Vision, Release Planning, and Iteration Planning

MINIMUM VIABLE PRODUCT

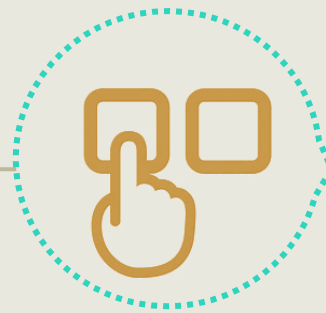
- Customer Journey
- Story Map
- End-to-end functionality
- Example: video streaming service



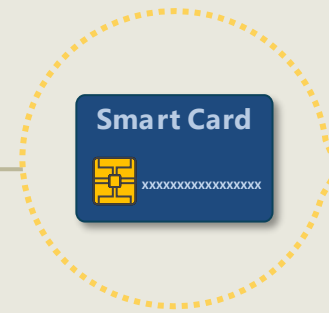
Log in



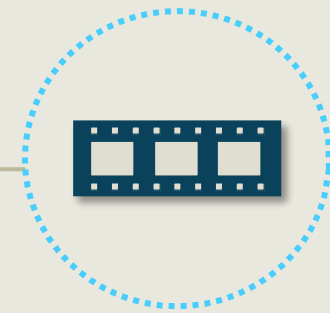
Perform search



Select a movie

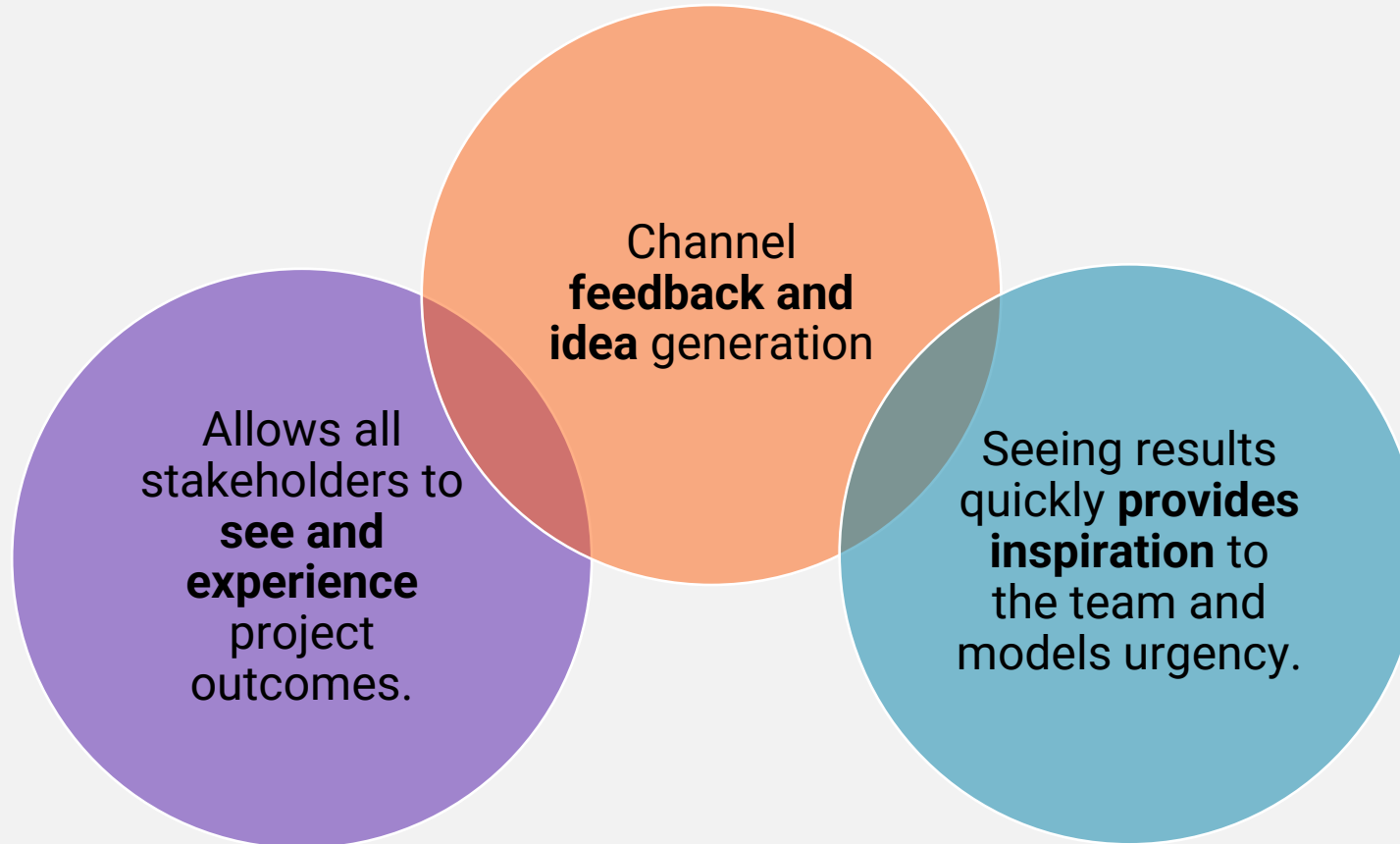


Make payment



Watch movie

Minimum Viable Product (MVP)



Minimum Business Increment (MBI)

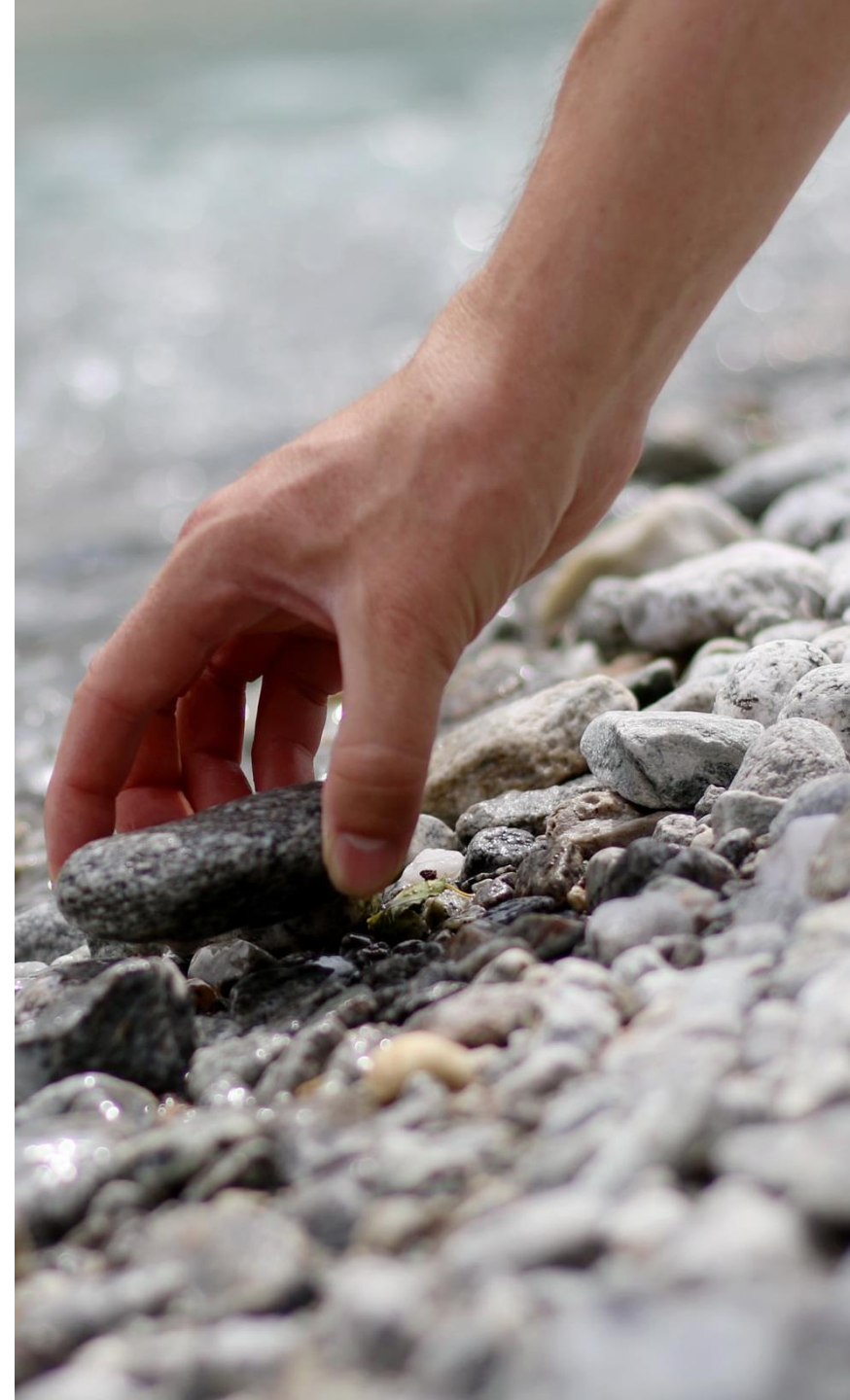
MBI is more viable when an MVP might disrupt the users and business, especially when a basic preliminary product, to gauge interest, is not necessary.

Optimize use of MBIs by:

- ✓ Ensuring the product and functions are understood.
- ✓ Pinpointing an incremental value increase.

Advantages of MBIs:

- ✓ Enable project team to deliver value sooner.
- ✓ Help team validate improvements.
- ✓ Enables team to incrementally build on success or pivot as needed.



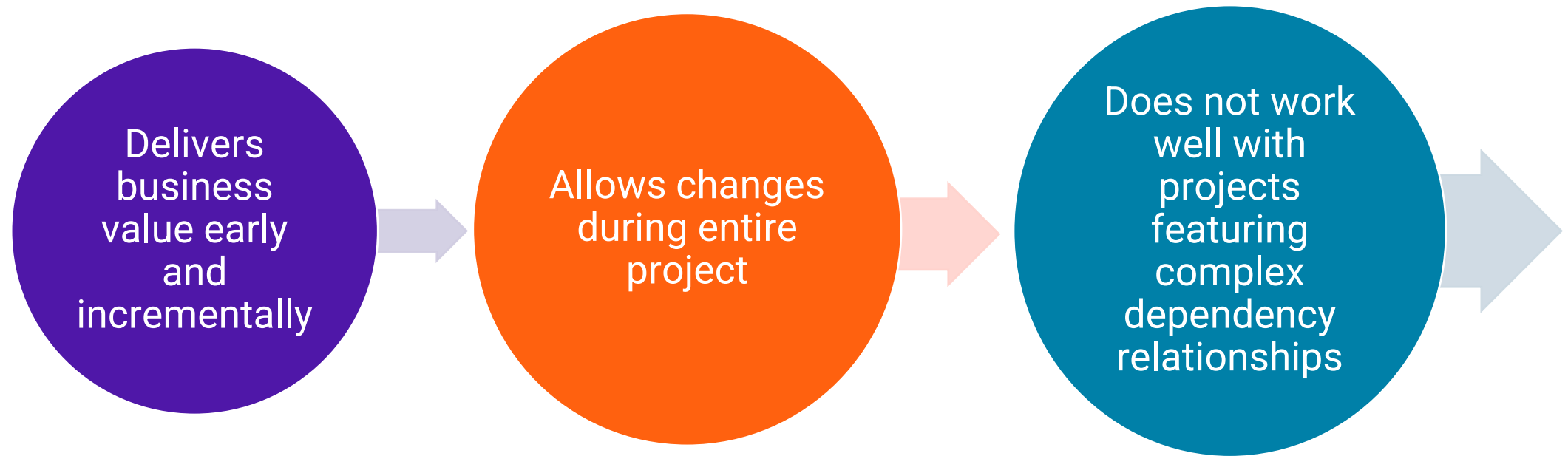


Cycles and Timeboxes

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**.

Iterative Scheduling with Backlog



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



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



Project Artifact Examples

Artifacts unique to agile projects:

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

QUICK ACCESS

MY WORKSPACE

MY RECENT ACTIVITY

...

DATE

PROJECT

Today ^

☐

Adwords campaign

This is my project

Needs follow up

Web

wp1

4

5/3

Doing

Assigned to

Priority

Time logged

14.00

Due date

Today

☐

Affiliate program

My New Project

Needs more L

Doing

Assigned to

Priority

Time logged

8.00

Due date

Today

Tomorrow ^

☐

New popup creation

My New Project

Technical

wp1

1

5/3

To do

Assigned to

Priority

Time logged

12.00

Due date

Tomorrow

Later this week ^

☐

Implement list view

My New Project

Technical

To do

Assigned to

Priority

Time logged

Due date

Wednesday

☐

Homepage wireframes

Software Development

Mockup reqs

5/3

Backlog

Assigned to

Priority

Time logged

Due date

Thursday

☐

Product detail page wire frames

Software Development

Mockup reqs

Version 1.2

5/1

Backlog

Assigned to

Priority

Time logged

Due date

Friday

Upcoming ^

☐

Newsletter campaign

Nationwide campaign

Web

wp1

5/3

To do

Assigned to

Priority

Time logged

Due date

Jan 27

☐

Get in touch with speakers

Annual tradeshow

5/1

To do

Assigned to

Priority

Time logged

Due date

Jan 28

☐

Conferences setup

Annual tradeshow

5/3

To do

Assigned to

Priority

Time logged

Due date

Feb 1

☐

Sound and lights rental

Annual tradeshow

5/1

To do

Assigned to

Priority

Time logged

Due date

Feb 4

Performance Report Types

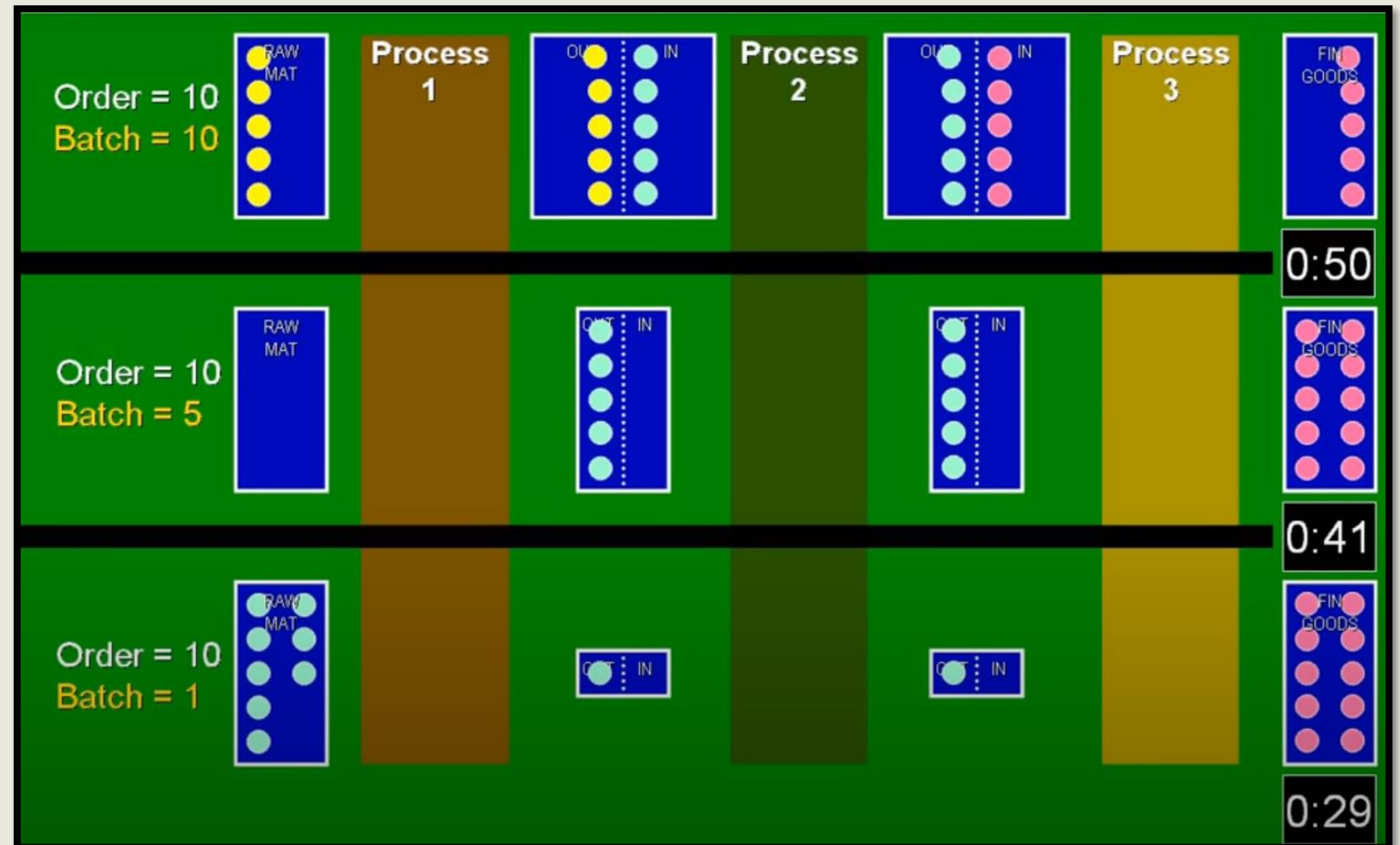
Type	Description
Information Radiators	Big visual boards to display in high traffic public locations about the project and the advancement of the project. The aim is to radiate information to all about the project work.
Burndown Chart	A graph to show the progress by plotting the burning down of work 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 Reports	The physical or electronic representation of work performance information compiled in project 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.

More
about...

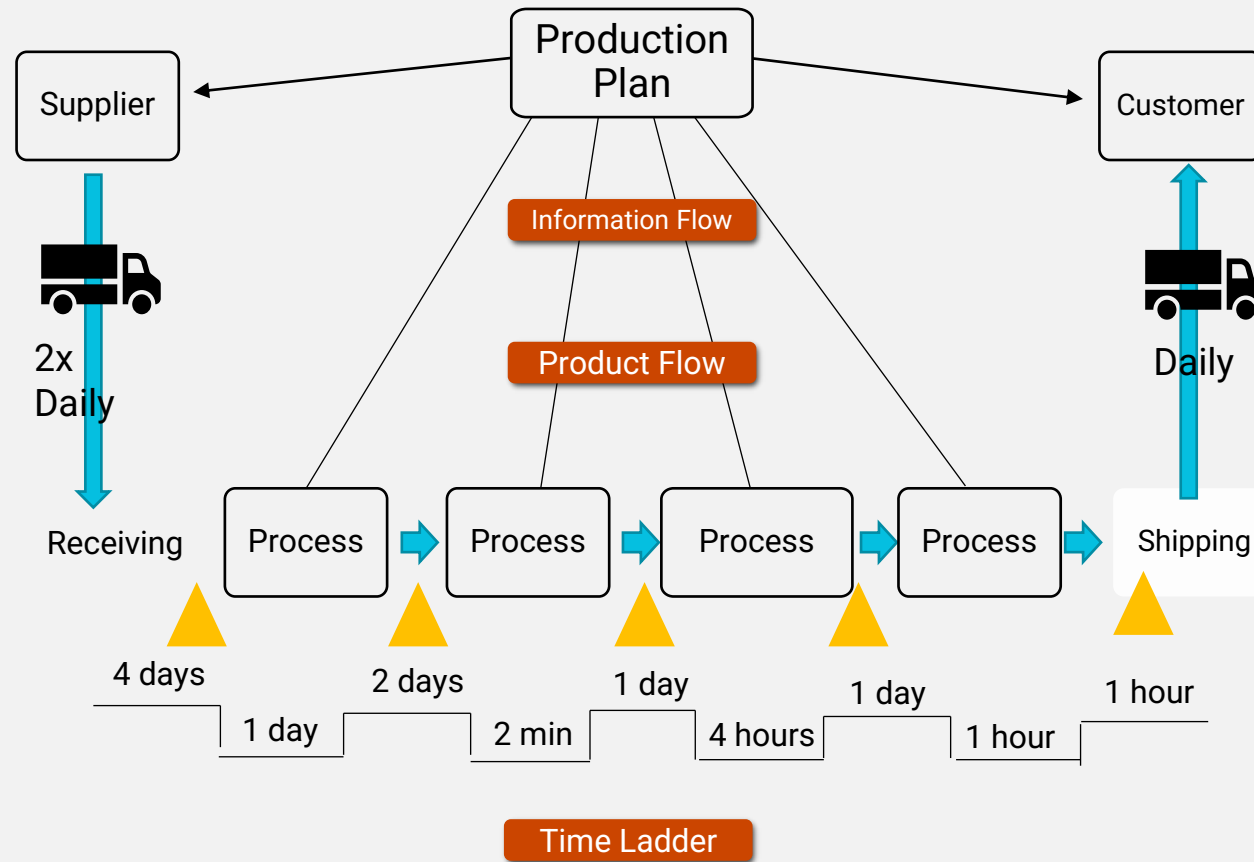
One Piece Flow versus Batch Production

Video: One Piece Flow versus Batch Production - Lean Manufacturing (0:46 run time)

Source: <https://youtu.be/JoLHKSE8sfU>



Value Stream Map



Retrospectives and Lessons Learned



Agile Retrospectives –
held as necessary
throughout the project

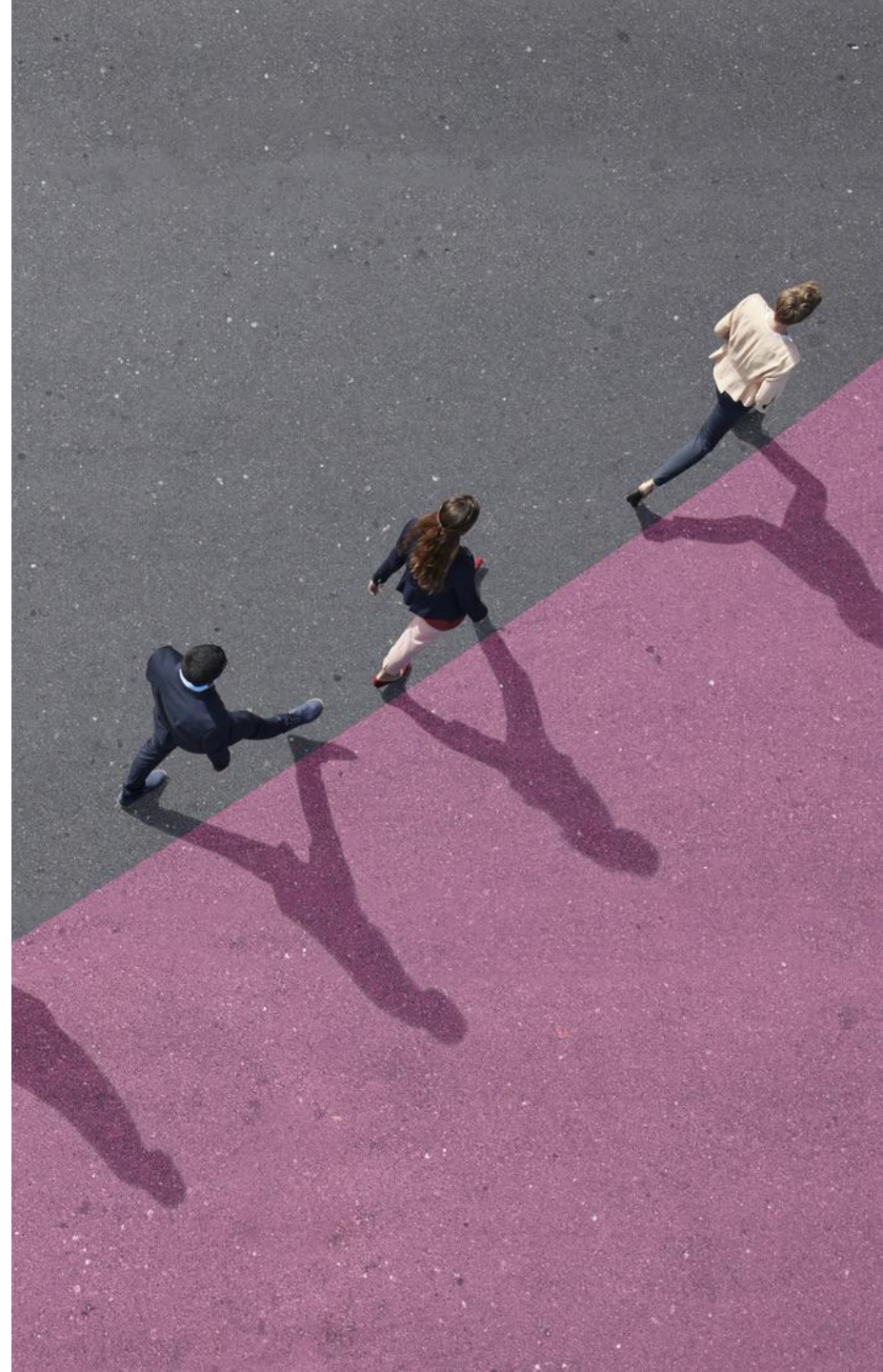
- ✓ Gather data on improvements and recognize successes.
- ✓ Review what went well and what could have been better.
- ✓ Involve everyone and respect their input.
- ✓ Avoid the blame game and focus on learning and growth opportunities



Lessons Learned –
at the end of
projects

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.



MASTERY BUILDER

Every timeboxed iteration in the project has a demo scheduled at the end, during the iteration review session. What is the goal of this demo?

- ☐ To groom the iteration backlog.
- ☐ To review the product roadmap.
- ☐ To solicit feedback from the product owner and other stakeholders.
- ☐ To establish the features to be included in the product backlog.

**Creating a
high
performing
team**



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MASTERY BUILDER

Which of the following is not a benefit of planning for a minimum viable product?

- ☐ Risk reduction
- ☐ Early feedback
- ☐ Early value from the service
- ☐ Project team disband early

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Which of the following is not a benefit of planning for a minimum viable product?

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MASTERY BUILDER

What is the ideal spot for an information radiator?

- ☐ In the manager's office.
- ☐ In a high-traffic area.
- ☐ In an unused conference room.
- ☐ On the project manager's laptop.

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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!