

SAFe® Advanced Scrum Master

Advancing Scrum Master Servant Leadership
with SAFe

5.0

SAFe® Authorized Course Attending this course gives students access to the SAFe Advanced Scrum Master exam and related preparation materials.



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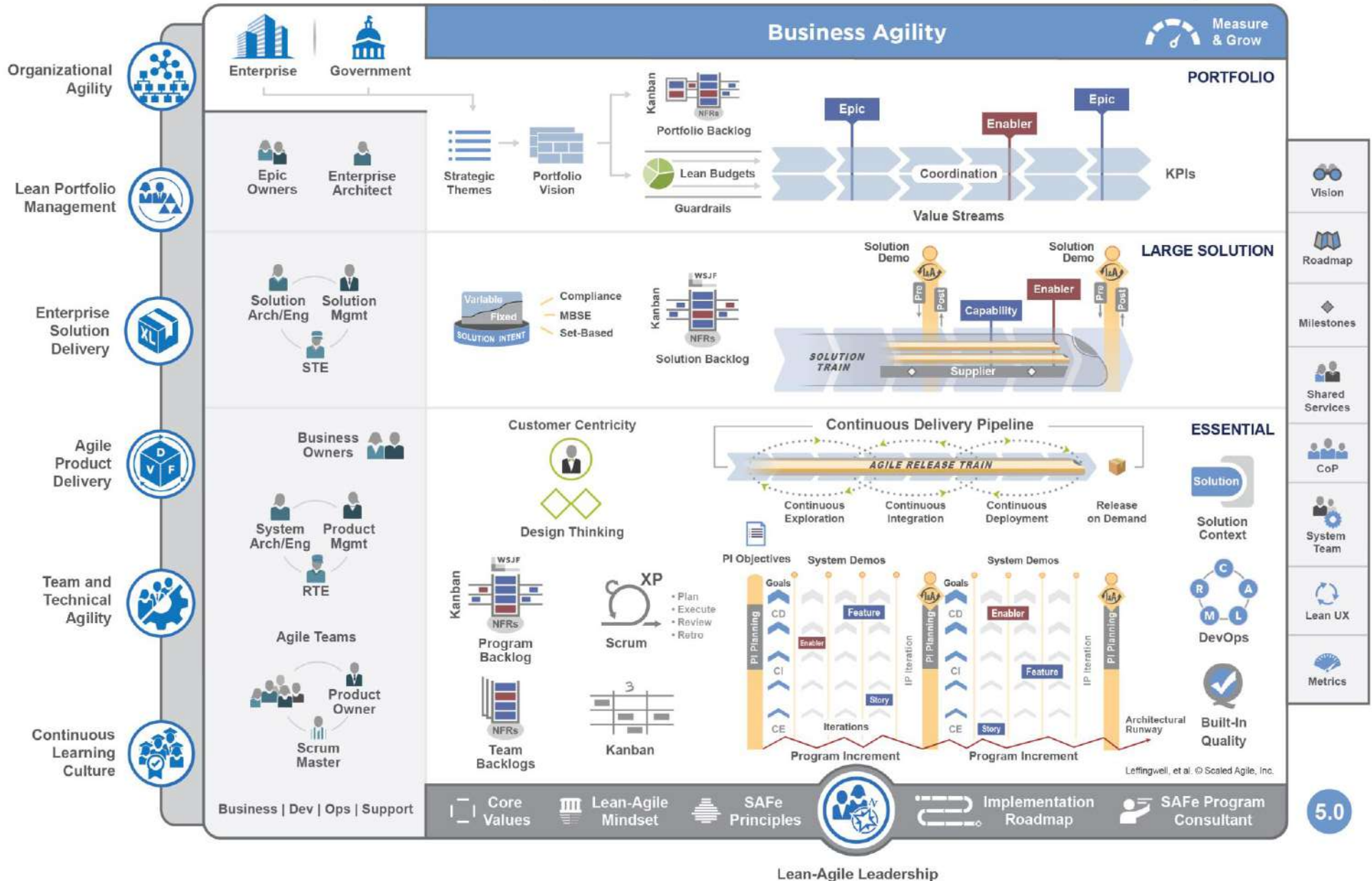
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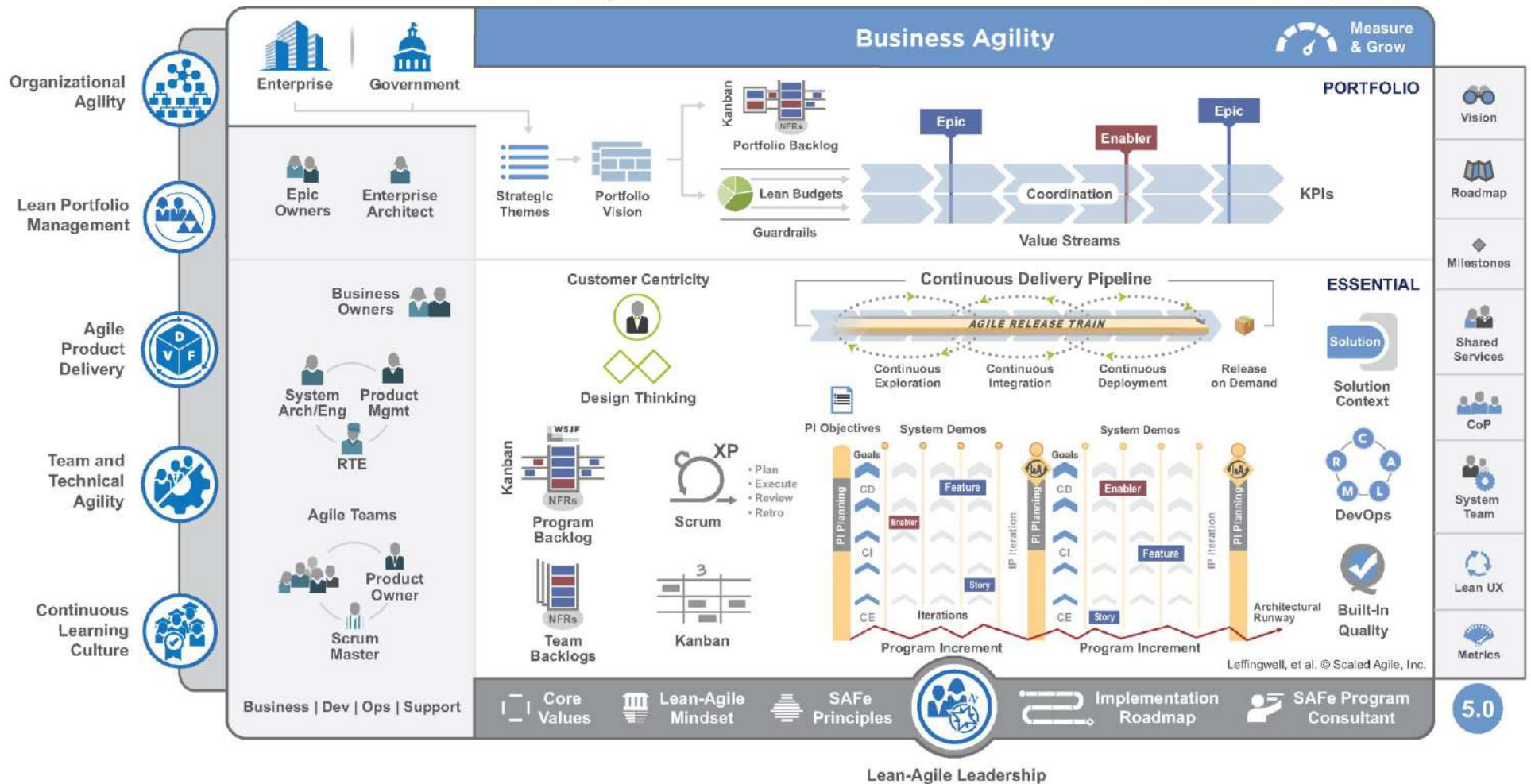
SAFe® for Lean Enterprises

Full Configuration



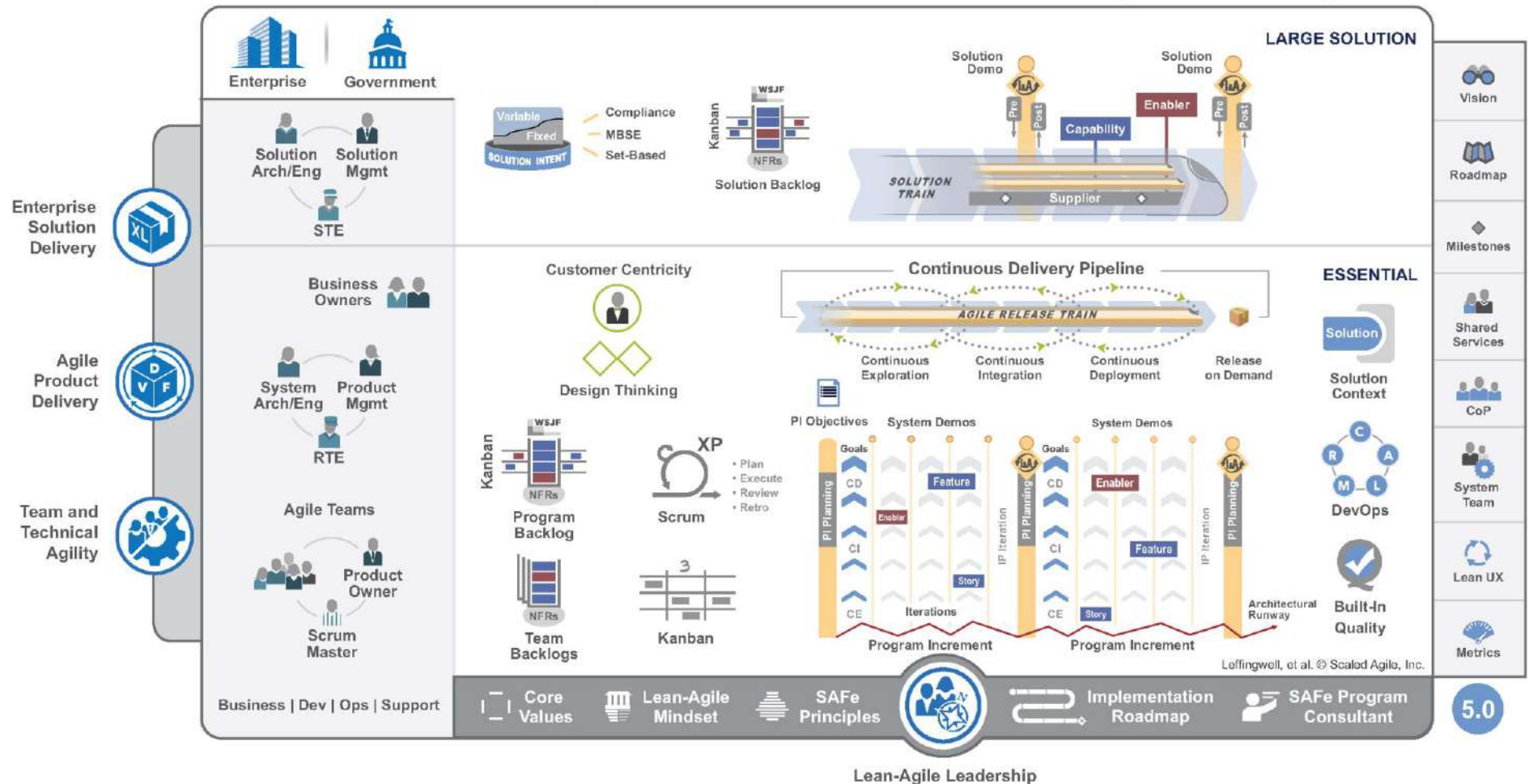
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Portfolio Configuration



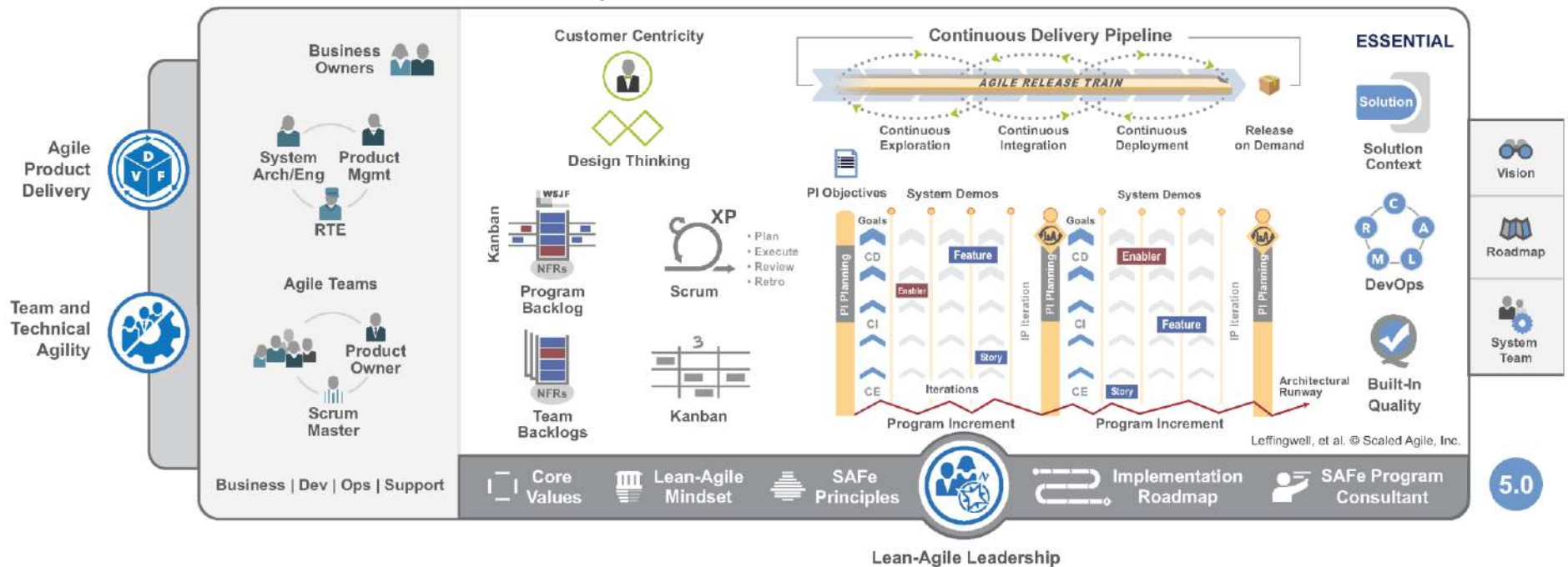
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Large Solution Configuration



SAFe® for Lean Enterprises

Essential Configuration





EXECUTION

STRATEGY

Enterprise Solution Delivery

- Apply Lean system engineering to build really big systems
- Coordinate and align the full supply chain
- Continually evolve live systems



Lean Portfolio Management

- Align strategy, funding, and execution
- Optimize operations across the portfolio
- Lightweight governance empowers decentralized decision-making



Agile Product Delivery

- The customer is the center of your product strategy
- Develop on cadence and release on demand
- Continuously explore, integrate, deploy, and innovate



Organizational Agility

- Create an enterprise-wide, Lean-Agile mindset
- Lean out business operations
- Respond quickly to opportunities and threats



Team And Technical Agility

- High-performing, cross-functional, Agile teams
- Business and technical teams build business solutions
- Quality business solutions delight customers



Lean-Agile Leadership

- Inspire others by modeling desired behaviors
- Align mindset, words, and actions to Lean-Agile values and principles
- Actively lead the change and guide others to the new way of working

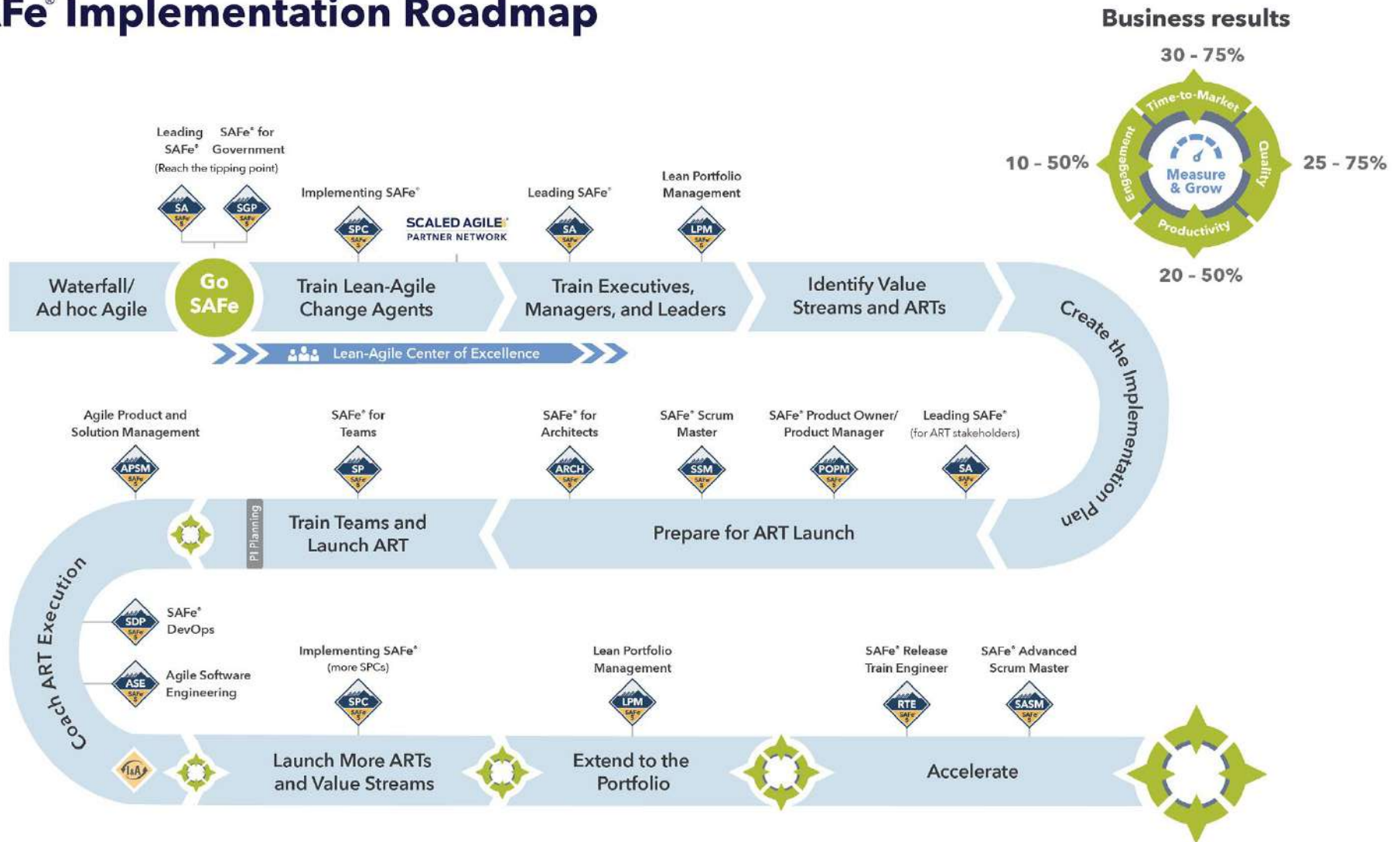


Continuous Learning Culture

- Everyone in the organization learns and grows together
- Exploration and creativity are part of the organization's DNA
- Continuously improving solutions, services, and processes is everyone's responsibility



SAFe® Implementation Roadmap



SAFe® Courses and Certifications

Course	Description	Certification
Leading SAFe®	Thriving in the digital age with Business Agility	 with SAFe® 5 Agilist Certification
Implementing SAFe®	Achieving Business Agility with the Scaled Agile Framework	 with SAFe® 5 Program Consultant Certification
SAFe® for Government	Applying Lean-Agile Practices in the Public Sector with SAFe®	 with SAFe® 5 Government Practitioner Certification
Lean Portfolio Management	Aligning Strategy with Execution	 with SAFe® 5 Lean Portfolio Manager Certification
SAFe® Product Owner/Product Manager	Delivering Value through Effective Program Increment Execution	 with SAFe® 5 Product Owner/Product Manager Certification
Agile Product and Solution Management	Using Design Thinking to Create Valuable Products in the Lean Enterprise	 with SAFe® 5 Agile Product and Solution Manager Certification
SAFe® Scrum Master	Applying the Scrum Master Role within a SAFe® Enterprise	 with SAFe® 5 Scrum Master Certification
SAFe® Advanced Scrum Master	Advancing Scrum Master Servant Leadership with SAFe®	 with SAFe® 5 Advanced Scrum Master Certification
SAFe® Release Train Engineer	Facilitating Lean-Agile Program Execution	 with SAFe® 5 Release Train Engineer Certification
SAFe® for Architects	Architecting for Continuous Value Flow with SAFe®	 with SAFe® 5 Architect Certification
SAFe® DevOps	Optimizing Your Value Stream	 with SAFe® 5 DevOps Practitioner Certification
SAFe® for Teams	Establishing Team Agility for Agile Release Trains	 with SAFe® 5 Practitioner Certification
Agile Software Engineering	Enabling Technical Agility for the Lean Enterprise	 with SAFe® 5 Agile Software Engineer Certification

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Notes:

Logistics

- ▶ Class times
- ▶ Breaks
- ▶ Lunch
- ▶ Restrooms
- ▶ Accessing Wi-Fi
- ▶ Working agreements

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Notes:



Discussion: Introductions

Duration



- ▶ **Step 1:** Find someone you don't know
- ▶ **Step 2:** Introduce yourself and share with them:
 - One thing you already know about the Scrum Master role
 - One thing you hope to learn about the Scrum Master role in this course
- ▶ **Step 3:** Team up with another pair and take turns introducing the person you just met



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Notes:

Course map

- ▶ Lesson 1: Exploring the Scrum Master Role in SAFe
- ▶ Lesson 2: Applying SAFe Principles
- ▶ Lesson 3: Exploring Agile and Scrum Anti-Patterns
- ▶ Lesson 4: Facilitating Program Execution
- ▶ Lesson 5: Improving Flow with Kanban and XP
- ▶ Lesson 6: Building High-Performing Teams
- ▶ Lesson 7: Improving Program Performance
- ▶ Lesson 8: Becoming a Certified SAFe Advanced Scrum Master

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Notes:

Lesson 1

Exploring the Scrum Master Role in SAFe

Learning Objectives:


- 1.1 Explore Scrum Master challenges in the Enterprise
- 1.2 Explain the purpose and the basic constructs of SAFe
- 1.3 Establish Scrum Master connections in SAFe



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Notes:



Discussion: Challenges that require facilitation

Prepare
3 min

Share
2 min

- ▶ **Step 1:** Brainstorm team challenges that require facilitation and that originate from *within* and *outside* the team.
- ▶ **Step 2:** Write those challenges on sticky notes and save them. We will address them later in the course.
- ▶ **Step 3:** Share a few of the challenges with the class.

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Notes:

Characteristics of an effective Agile Team

- ▶ Displays the Lean Enterprise competency of Team and Technical Agility
- ▶ Is able to reliably deliver
- ▶ Has members who are not afraid to challenge each other's ideas
- ▶ Makes process visible to its team members and to stakeholders
- ▶ Collaborates to achieve Iteration goals and PI Objectives
- ▶ Produces consistent, high-quality increments of value
- ▶ Sustains a predictable pace of development

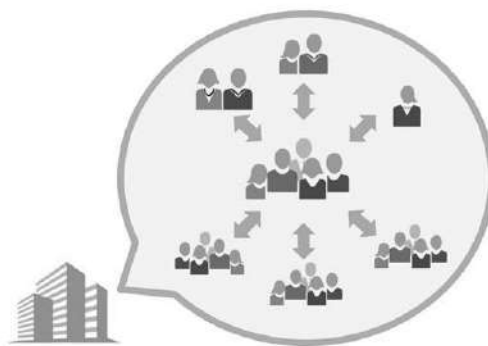
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Notes:

Modern Enterprises introduce a bigger challenge

The team in the Enterprise is affected by other teams, stakeholders, and processes that fall outside of its control.



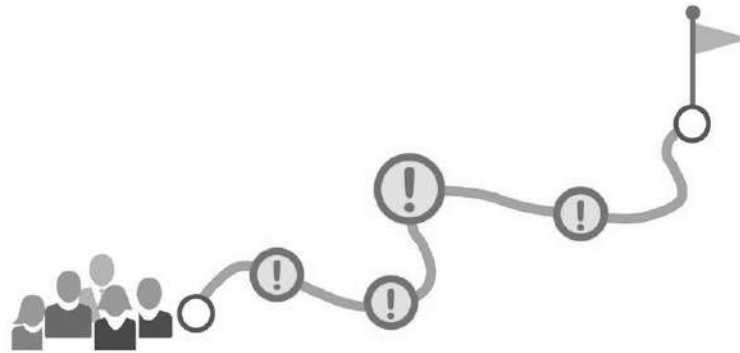
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Notes:

Teams must relentlessly improve


Apart from the impediments to developing and delivering value, Agile Teams in the Enterprise may encounter significant roadblocks to growth.



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Notes:



Discussion: Enabling team growth

Prepare
3 min

Share
2 min

- ▶ **Step 1:** Discuss the following:
 - What are some roadblocks that prevent your team from growing, improving, learning, and becoming stronger?
- ▶ **Step 2:** Share with the class some of the roadblocks and some of the possible solutions for removing impediments.

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Notes:

1.2 Explain the purpose and the basic constructs of SAFe

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Notes:

Why SAFe?

SAFe business benefits are derived directly from case studies written by SAFe customers



Source: scaledagileframework.com/case-studies

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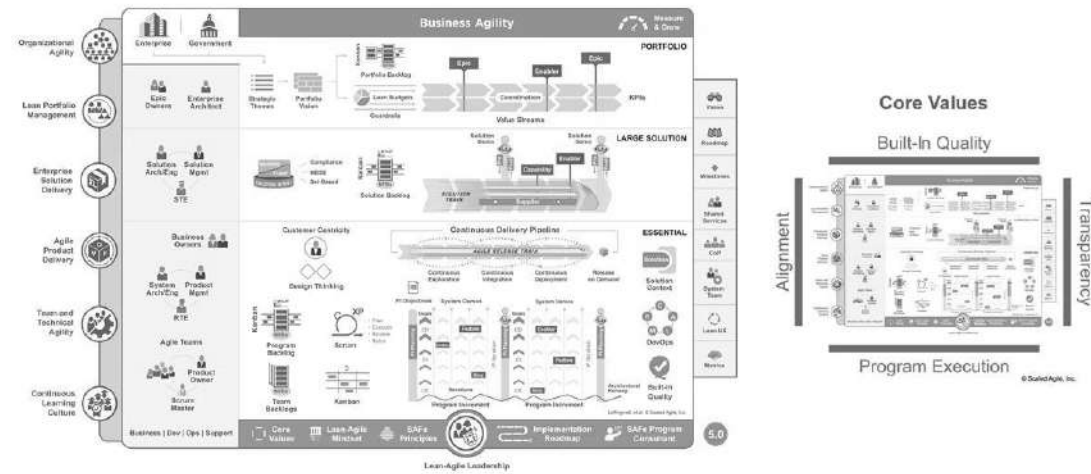
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Notes:

1.2 Explain the purpose and the basic constructs of SAFe

The Scaled Agile Framework

SAFe synchronizes alignment, collaboration, and delivery for large numbers of teams.



Notes:

SAFe's Seven Core Competencies



Notes:

Team and Technical Agility is the engine

- ▶ High-performing, cross-functional Agile teams
- ▶ Business and technical teams build business Solutions
- ▶ Quality business Solutions delight Customers



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Notes:

Agile Product Delivery provides the focus on Customer and execution

- ▶ The Customer is the center of your product strategy
- ▶ Develop on cadence and Release on Demand
- ▶ Continuously explore, integrate, deploy, and innovate



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Notes:

1.2 Explain the purpose and the basic constructs of SAFe

Enterprise Solution Delivery drives delivery of highly complex systems

- ▶ Apply Lean system engineering to build really big systems
- ▶ Coordinate and align the full supply chain
- ▶ Continually evolve live systems



Notes:

Lean Portfolio Management aligns execution to strategy

- ▶ Align strategy, funding, and execution
- ▶ Optimize operations across the portfolio
- ▶ Lightweight governance empowers decentralized decision-making



Notes:

Organizational Agility provides the flexibility to change

- ▶ Create an enterprise-wide, Lean-Agile mindset
- ▶ Lean out business operations
- ▶ Respond quickly to opportunities and threats

Lean-thinking People and Agile Teams



Lean Business Operations



Strategy Agility



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Notes:

Continuous Learning Culture transforms the culture

- ▶ Everyone in the organization learns and grows together
- ▶ Exploration and creativity are part of the organization's DNA
- ▶ Continuously improving solutions, services, and processes is everyone's responsibility

Learning Organization



Innovation Culture



Relentless Improvement



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Notes:

Lean-Agile Leadership provides the foundation

- ▶ Inspire others by modeling desired behaviors
- ▶ Align mindset, words, and actions to Lean-Agile values and principles
- ▶ Actively lead the change and guide others to the new way of working



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Notes:


1.3 Establish Scrum Master connections in SAFe

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Notes:

1.3 Establish Scrum Master connections in SAFe



Discussion: The Seven Core Competencies and the Scrum Master role

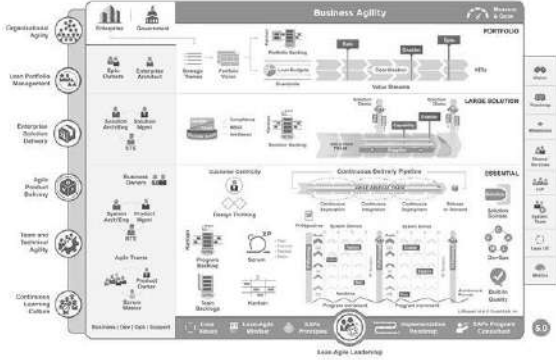
Prepare
5 min

Share
2 min

► **Step 1:** Considering the 'Big Picture' graphic, draw connections from the Scrum Master role to other Framework elements, based on:

- Communication
- Collaboration
- Problem-solving
- Inputs/Outputs
- Other ideas you have

► **Step 2:** Share some of your insights with the class



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Notes:

Lesson review

In this lesson you:

- ▶ Explored the Scrum Master role in SAFe
- ▶ Explained the purpose and basic constructs of SAFe
- ▶ Established Scrum Master connections in SAFe

Notes:

Lesson 2

Applying the SAFe Lean-Agile Principles

Learning Objectives:

2.1 Apply the SAFe Principles in the role of a Scrum Master



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2.1 Apply the SAgile Principles in the role of a Scrum Master

SAgile Lean-Agile Principles

- #1 Take an economic view
- #2 Apply systems thinking
- #3 Assume variability; preserve options
- #4 Build incrementally with fast, integrated learning cycles
- #5 Base milestones on objective evaluation of working systems
- #6 Visualize and limit WIP, reduce batch sizes, and manage queue lengths
- #7 Apply cadence, synchronize with cross-domain planning
- #8 Unlock the intrinsic motivation of knowledge workers
- #9 Decentralize decision-making
- #10 Organize around value

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Notes:

#1 Take an economic view

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Notes:

2.1 Apply the SAFe Principles in the role of a Scrum Master

Apply a comprehensive economic framework

SAFe's economic framework contains four primary elements:

- ▶ Operating within lean budgets and guardrails
- ▶ Understanding solution economic trade-offs
- ▶ Leveraging suppliers
- ▶ Sequencing jobs for the maximum benefit

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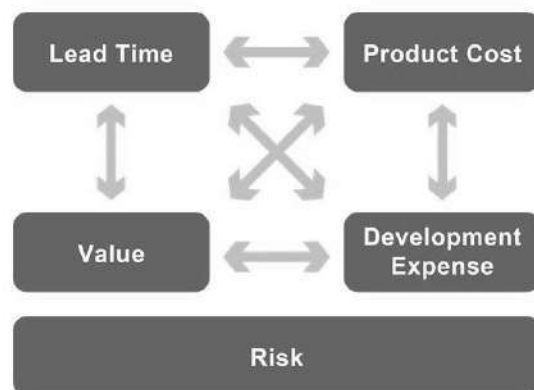
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Notes:

Solution economic trade-offs

Understanding tradeoff parameters

- ▶ Sequence jobs for maximum benefit
- ▶ Do not consider money already spent
- ▶ Make economic choices continuously
- ▶ Empower local decision making
- ▶ If you only quantify one thing, quantify the cost of delay



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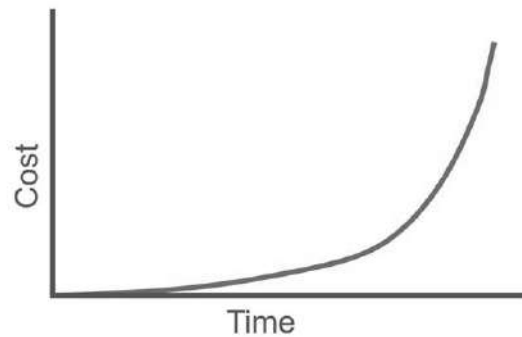
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Notes:

Examples of high-impact indicators

Here are examples of indicators that may have a surprisingly high economic impact in the long run.

- ▶ Cost of late defect fixing
- ▶ Cost of branching with late merge
- ▶ Cost of delayed performance testing
- ▶ Cost of large batch of cross-team dependencies
- ▶ Economic value of test automation
- ▶ Economic value of Enablers such as research spikes, refactors, etc.




The cost of fixing a defect grows nearly exponentially over time.

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Notes:



Discussion: Economic decisions

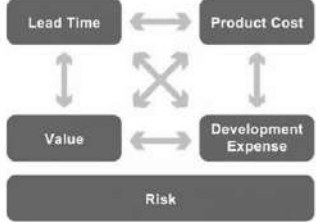
Prepare
6 min

Share
6 min

► **Step 1:** Looking at the economic trade-offs, discuss the economic impact of the following challenges:

- Cost of late defect fixing
- Cost of branching with late merge
- Cost of delayed performance testing
- Cost of large batch of cross-team dependencies
- Economic value of test automation and Enablers, such as research spikes, refactors, etc.

► **Step 2:** Be prepared to share with the class



```
graph TD; LT[Lead Time] <--> PC[Product Cost]; V[Value] <--> DE[Development Expense]; R[Risk] --> LT; R --> PC; R --> V; R --> DE; LT --> PC; V --> DE; PC --> V; DE --> LT; R --> LT; R --> PC; R --> V; R --> DE;
```

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Notes:

#2 Apply systems thinking

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Notes:

Three primary aspects of systems thinking

1. The solution itself
is a system.



2. The enterprise building the
system is a system too.



3. Optimize the full
value stream.



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Notes:

2.1 Apply the SAFe Principles in the role of a Scrum Master

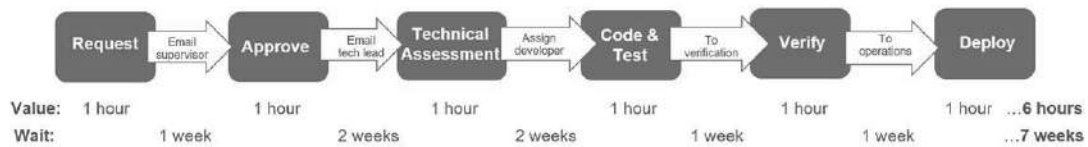
Optimize the full Value Stream

All we are doing is looking at the timeline, from when the customer gives us an order to when we collect the cash. And we are reducing the timeline by reducing the non-value-added wastes.

—Taiichi Ohno

- ▶ Most problems with your process will surface as delays
- ▶ Most of the time spent getting to market is a result of these delays
- ▶ Reducing delays is the fastest way to reduce time-to-market

Focus on the delays!



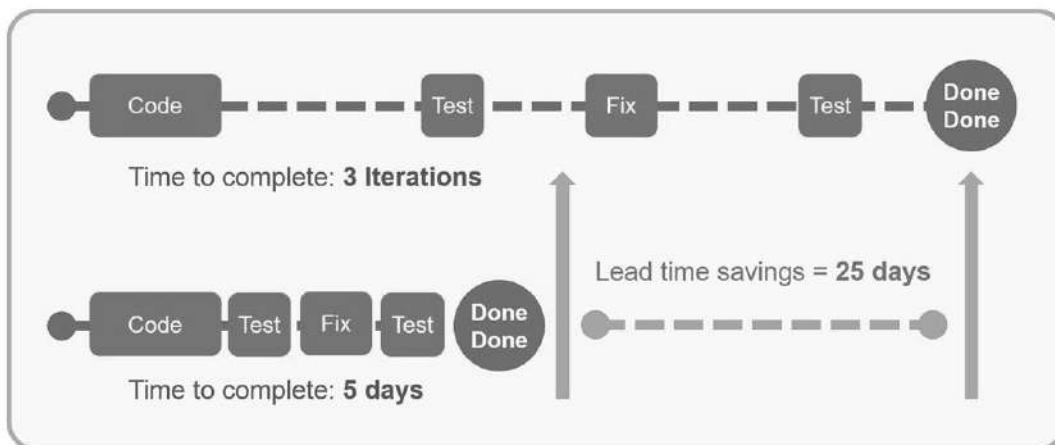
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Notes:

Reduce lead times and improve flow

A tale of two Stories



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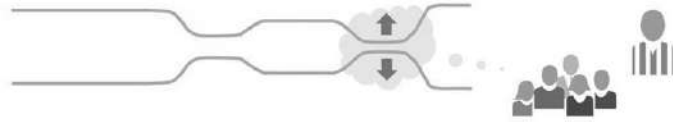
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Notes:

Move from bottleneck to bottleneck

I say an hour lost at a bottleneck is an hour out of the entire system. I say an hour saved at a non-bottleneck is worthless. Bottlenecks govern both throughput and inventory.


—Eliyahu M. Goldratt, *The Goal*



- ▶ The Scrum Master helps the team identify and remove bottlenecks
- ▶ Every system has only one or two bottlenecks that significantly constrain performance
- ▶ Once you have identified and removed the current bottleneck, there will be another one, but the system is already operating at a higher level of performance

Notes:

2.1 Apply the SAFe Principles in the role of a Scrum Master

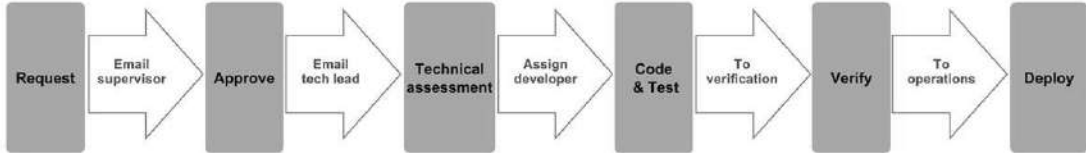


Discussion: Identifying delays

Prepare
3 min

Share
5 min

- ▶ **Step 1:** Select a part of your development process (could be any part, example below)
- ▶ **Step 2:** Discuss ways you could increase flow by reducing work in process (WIP) and eliminating bottlenecks
- ▶ **Step 3:** Be prepared to share with the class



```
graph LR; Request[Request] -- "Email supervisor" --> Approve[Approve]; Approve -- "Email tech lead" --> Tech[Technical assessment]; Tech -- "Assign developer" --> Code[Code & Test]; Code -- "To verification" --> Verify[Verify]; Verify -- "To operations" --> Deploy[Deploy];
```

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Notes:

#3 Assume variability; preserve options

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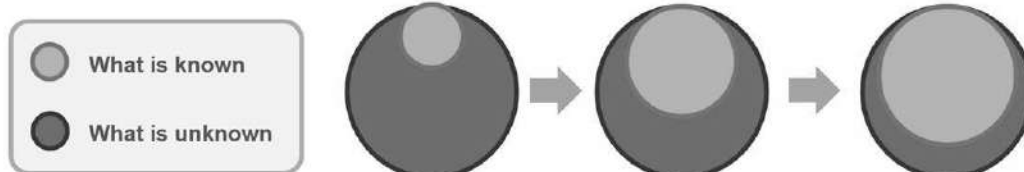
Notes:

Development occurs in an uncertain world

Aggressively evaluate alternatives. Converge specifications and solution sets.

—Allen Ward

- ▶ You cannot possibly know everything at the start
- ▶ Requirements and designs must be flexible to build an optimal Solution
- ▶ Iterative, incremental development can reduce uncertainty over time



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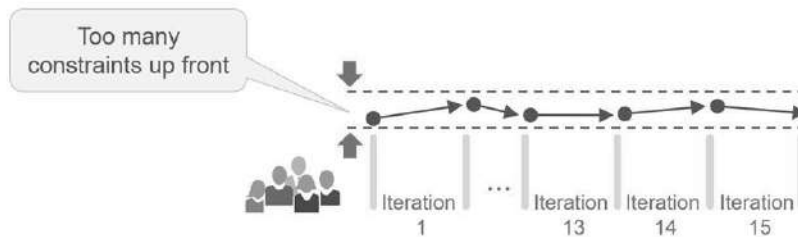
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Notes:

Common problem of many organizations

When Agile practices are adopted on top of a traditional, phase-gate mindset, teams end up with a typical problem:

- ▶ They follow an iterative and incremental development model while committing to a specific Solution specification early in the process
- ▶ As a result, the power of Agile is significantly underused and reduced to applying only minor adjustments



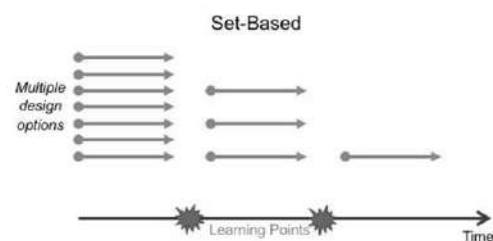
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Notes:

Different thought process is needed

- ▶ 'Just in time' elaboration of requirements and design
- ▶ Not everything should be defined at once
- ▶ Better requirements and design options will emerge over the course of iterations
- ▶ Up-front thinking is not enough; 'learning by doing' must extend the paradigm
- ▶ Set-based design
- ▶ If you can't be right early on, preserve multiple options until you have more certainty
- ▶ Narrow them down over the course of the learning points and iterations



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Notes:

#4 Build incrementally with fast, integrated learning cycles

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Notes:

Apply fast learning cycles

- ▶ Improves learning efficiency by decreasing the time between action and effect
- ▶ Reduces the cost of risk-taking by truncating unsuccessful paths quickly
- ▶ Is facilitated by small batch sizes
- ▶ Requires increased investment in development environment

The shorter the cycles, the faster the learning

The iterative learning cycle



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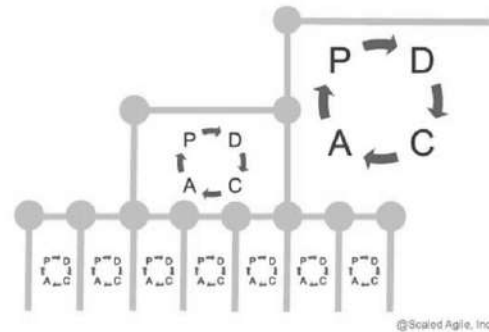
Notes:

2.1 Apply the SAFe Principles in the role of a Scrum Master

Apply fast learning cycles

Integration points control product development:

- ▶ Integration points accelerate learning
- ▶ Development can proceed no faster than the slowest learning loop
- ▶ Improvement comes through synchronization of design loops and faster learning cycles

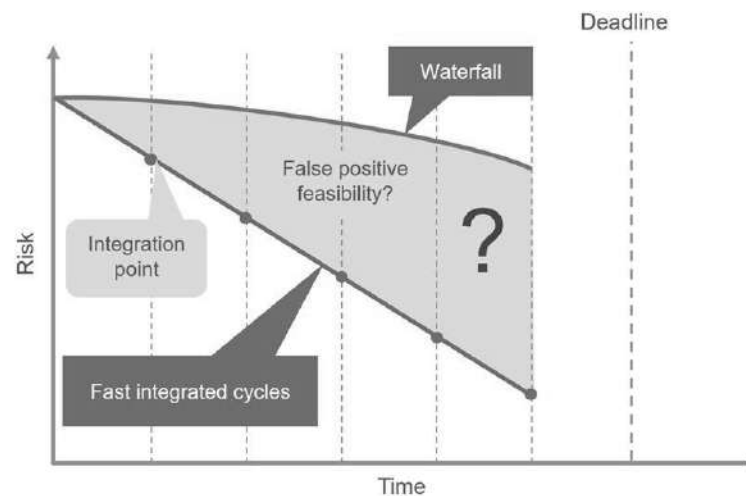


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Notes:

Integration points reduce risk




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Notes:

2.1 Apply the SAFe Principles in the role of a Scrum Master



Activity: PDCA learning cycles representations

Prepare
7 min

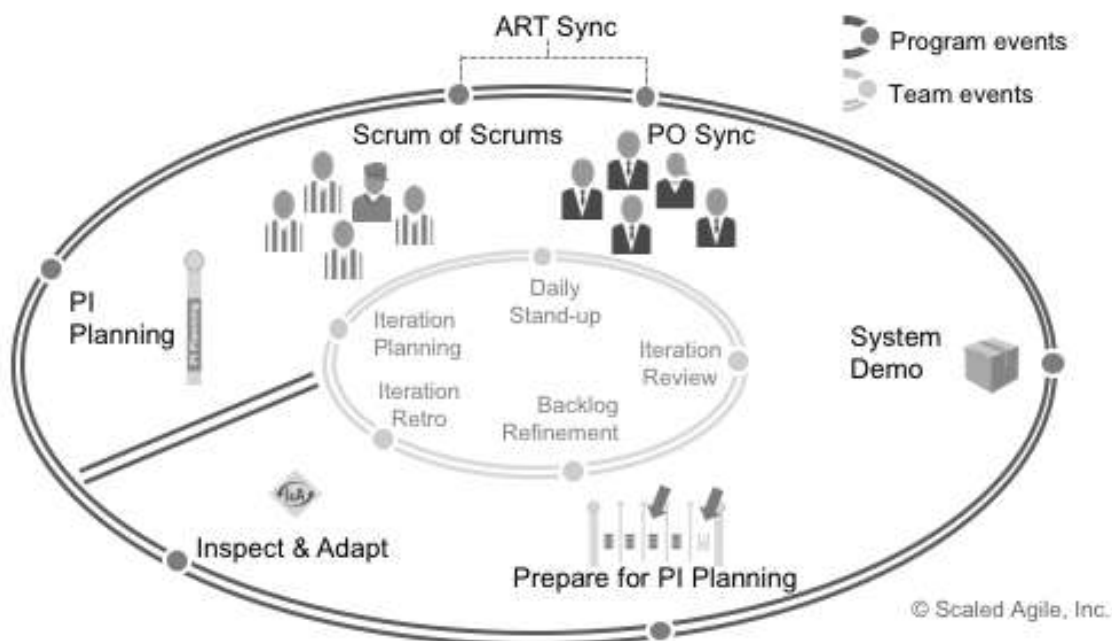
Share
3 min

- ▶ **Step 1:** Individually review the list of team and program events in your workbook
- ▶ **Step 2:** As a team using a flip chart sheet or a whiteboard, create a representation of the PDCA learning cycle for your team and for the program events
- ▶ **Step 3:** Discuss where, as a Scrum Master, you anticipate bigger challenges and why
- ▶ **Step 4:** Present your PDCA representations and share some insights with the class

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Notes:



#5 Base milestones on objective evaluation of working systems

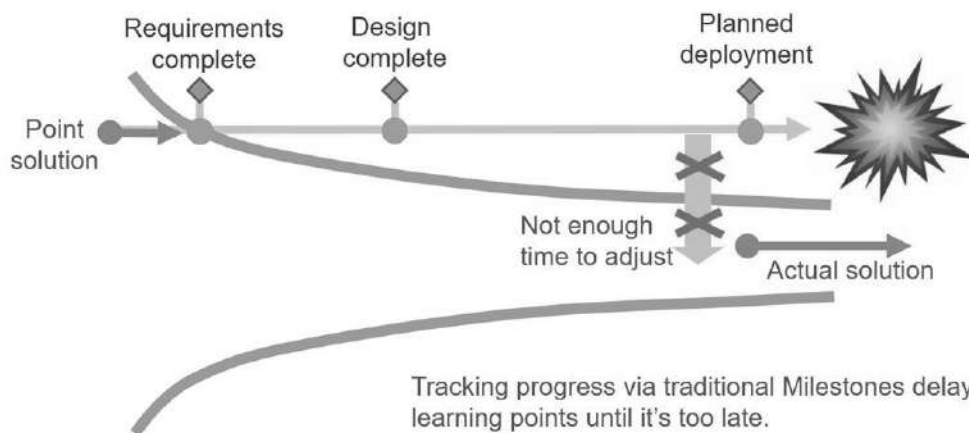
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Notes:

The problem of phase gate Milestones

Phase gates determine requirements and designs too early, rendering adjustments too late and costly as new facts emerge.



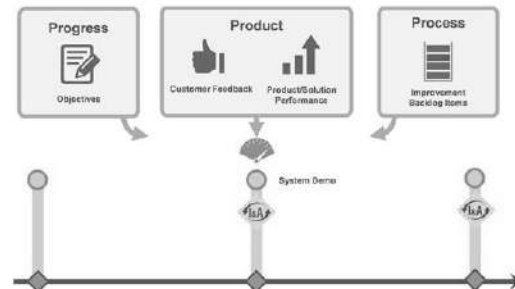
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Notes:

Apply objective Milestones

- Build the system in increments, each of which is an integration point that demonstrates some evidence of the feasibility of the solution in process.
- Milestones based on objective evaluation of working systems.



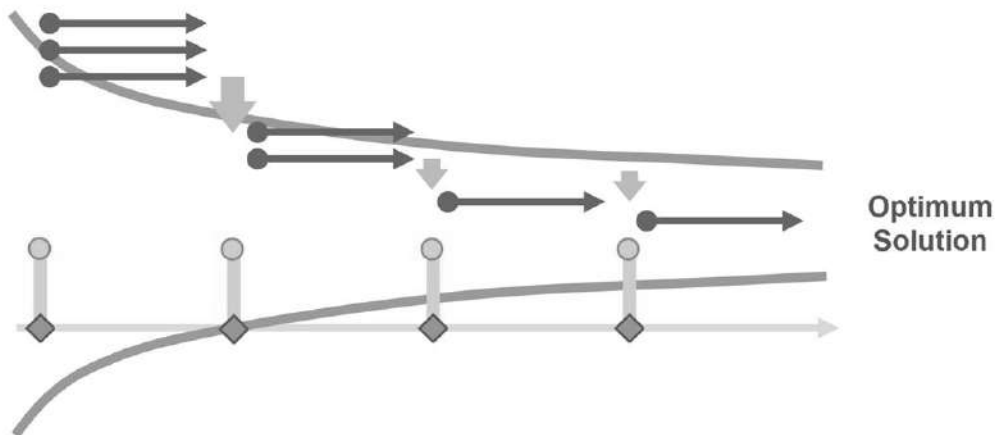
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Notes:

Iterate to the optimum Solution

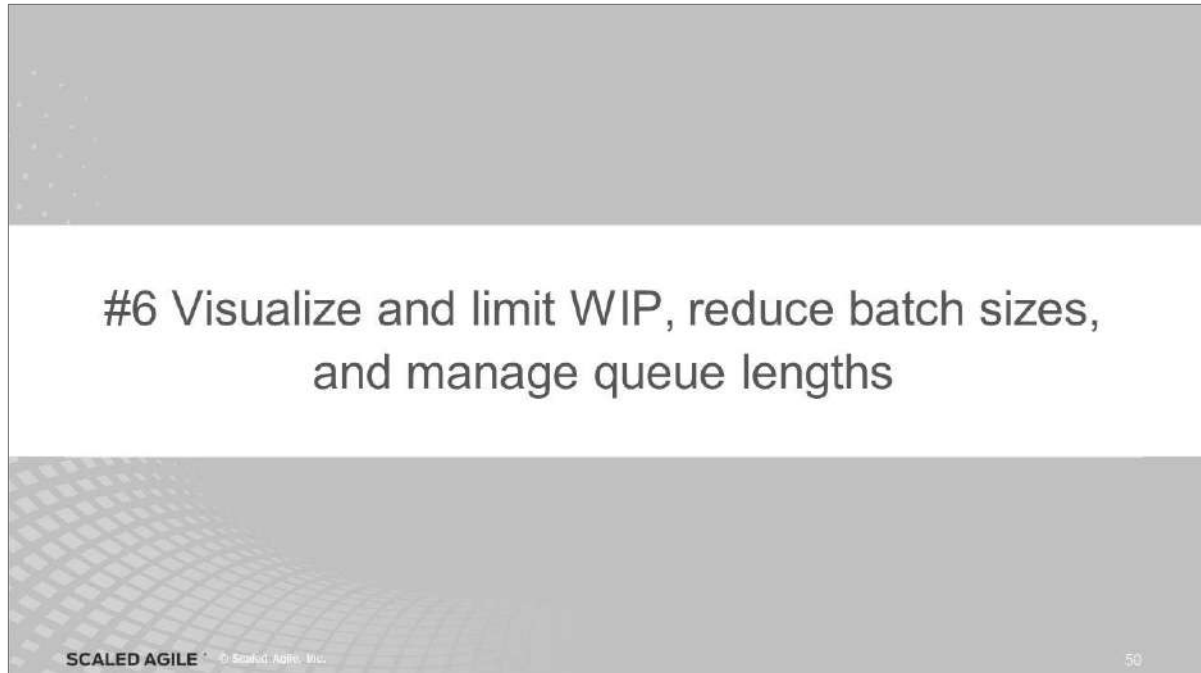
Objective Milestones facilitate learning and allow for continuous, cost-effective adjustments towards an optimum Solution.



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Notes:



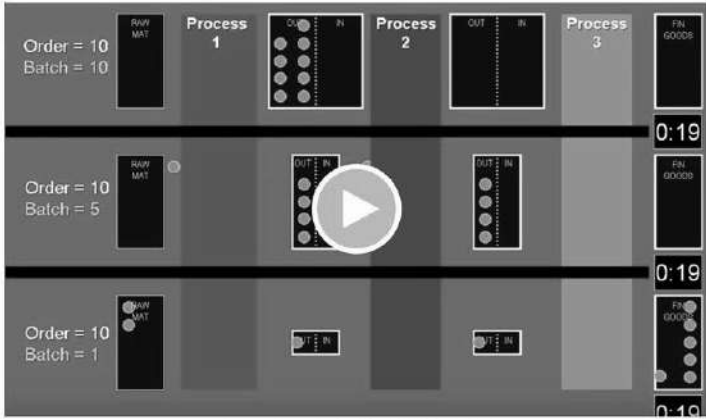
Notes:

2.1 Apply the SAFe Principles in the role of a Scrum Master



Video: Visualize and limit WIP

Duration
1 min




<https://youtu.be/JoLHKSE8sfU>

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Notes:

2.1 Apply the SAFe Principles in the role of a Scrum Master



Discussion: WIP and Flow

Prepare
3 min

Share
2 min

► **Step 1:** With your team, considering the flow of work represented on the diagram, discuss:

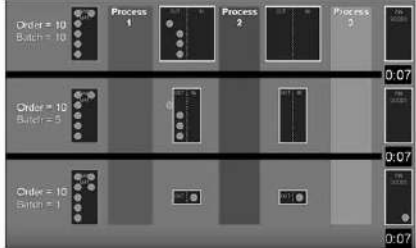
- How do you think the Scrum Masters for each Team feel about the progress?
What can the Scrum Master from Team 1 learn from Team 2 and 3?
- What is a large batch in your context and how can you improve flow?

► **Step 2:** Be prepared to share with the class

SM Team 1

SM Team 2

SM Team 3



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Notes:

2.1 Apply the SAFe Principles in the role of a Scrum Master

How can we reduce lead times?

- ▶ Reduce size of work
- ▶ Reduce bottlenecks
- ▶ Reduce waiting
- ▶ Increase swarming
- ▶ Improve quality



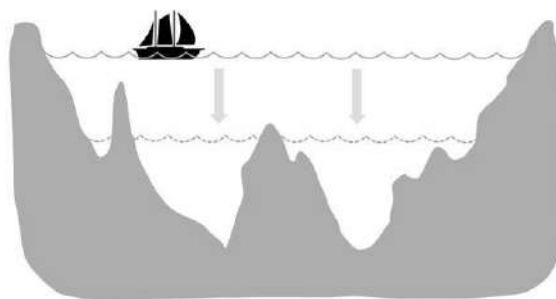
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Notes:

Work in process (WIP) and flow

When there's too much WIP, there's no visibility into bottlenecks, and the system is usually highly inefficient.



At the surface, however, it all looks smooth and promising.

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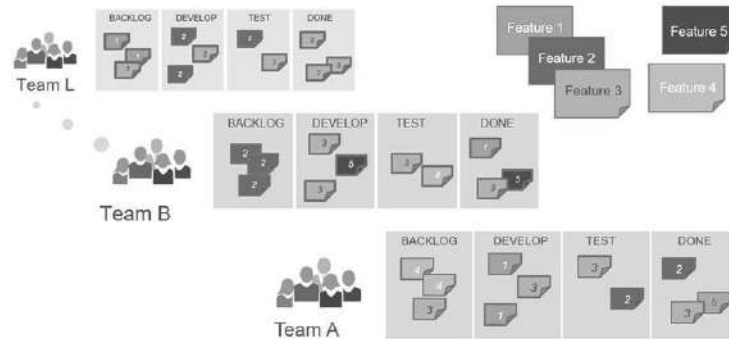
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Notes:

2.1 Apply the SAFe Principles in the role of a Scrum Master

Too much WIP slows down the enterprise

Having too much WIP confuses priorities, causes frequent context switching, and increases overhead.




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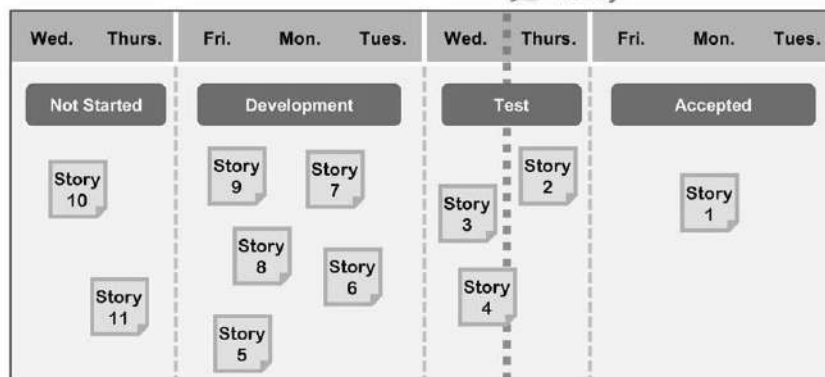
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Notes:

Visualize and limit WIP

One team's big visible information radiator (BVIR)

How is this team doing? How do you know?  Today




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Notes:

2.1 Apply the SAFe Principles in the role of a Scrum Master

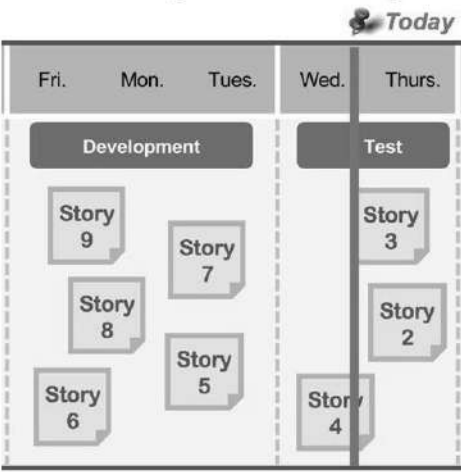


Discussion: WIP improvement opportunities

Prepare
5 min

Share
3 min

- ▶ **Step 1:** Look at the BVIR graphic in your Workbook.
- ▶ **Step 2:** At your table discuss what the effect would be of a three-story WIP constraint on Development and Test.
- ▶ **Step 3:** Consider the scenario: You're a developer. You just finished story 6. What would you do if:
 - There is no WIP constraint
 - The three-story WIP constraint is in place
- ▶ **Step 4:** Which scenario has the highest throughput?



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Notes:

The importance of small batches

Small batches go through the system faster with lower variability.

- ▶ Large batch sizes increase variability
- ▶ High utilization increases variability
- ▶ Severe project slippage is the most likely result
- ▶ The most important batch is the transport (handoff) batch
- ▶ Proximity (co-location) enables small batch size
- ▶ Good infrastructure enables small batches

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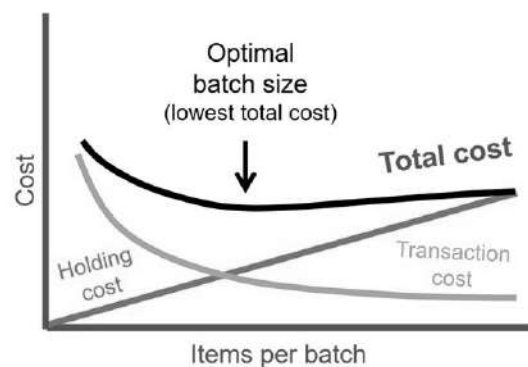
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Notes:

Reducing optimal batch size

Reducing transaction costs reduces total costs and makes optimal batch size lower.

- ▶ Reducing batch size:
 - Increases predictability
 - Accelerates feedback
 - Reduces rework
 - Lowers cost



Principles of Product Development Flow, Don Reinertsen

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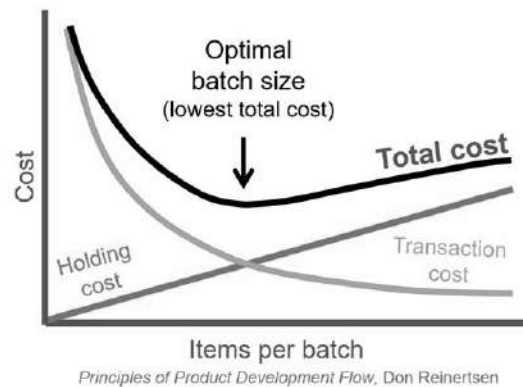
Notes:

2.1 Apply the SAgile Principles in the role of a Scrum Master

Finding optimal batch size

Optimal batch size is an example of a U-curve optimization.

- ▶ Total costs are the sum of holding costs and transaction costs
- ▶ Higher transaction costs make optimal batch size bigger
- ▶ Higher holding costs make batch size smaller



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Notes:

Manage queue lengths

Email from a client service organization:

Thank you for contacting us.



We are experiencing increased volumes and apologize in advance for the delay.

Our goal is to contact you within . . .

Long queues: All bad



Principles of Product Development Flow, Don Reinertsen

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Notes:

Reduce queue lengths

- ▶ Understand Little's Law
- ▶ Faster processing time decreases wait
- ▶ Control wait times by controlling queue lengths

$$W_q = \frac{L_q}{\lambda}$$

Average wait time = average queue length/average processing rate

Example: Given average processing speed of 10 Features per quarter and a committed set of 30 Features, a new Feature will experience an approximate wait time of:

$$\frac{30 \text{ items}}{10 \text{ items/Q}} = 3Q$$

Notes:

#7 Apply cadence, synchronize with cross-domain planning

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Notes:

Cadence and synchronization

Cadence

- ▶ Converts unpredictable events into predictable occurrences and lowers cost
- ▶ Makes waiting times for new work predictable
- ▶ Supports regular planning and cross-functional coordination
- ▶ Limits batch sizes to a single interval
- ▶ Controls injection of new work
- ▶ Provides scheduled integration points

Note: Delivering on cadence requires scope or capacity margin

Synchronization

- ▶ Causes multiple events to happen simultaneously
- ▶ Facilitates cross-functional tradeoffs
- ▶ Provides routine dependency management
- ▶ Supports full system and integration and assessment
- ▶ Provides multiple feedback perspectives

Note: To work effectively, design cycles must be synchronized

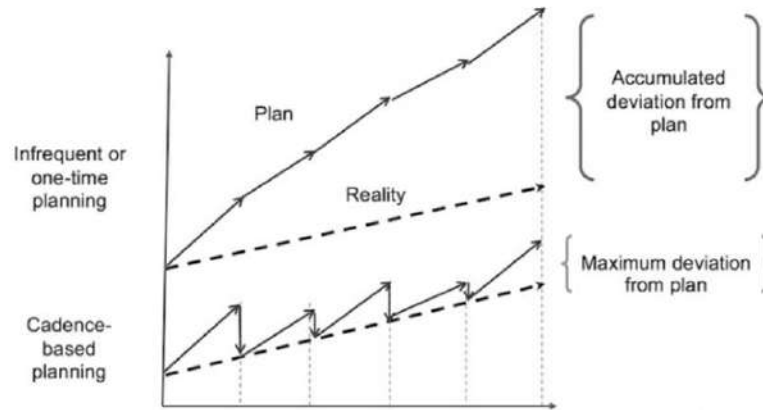
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Notes:

Control variability with planning cadence

Cadence-based planning limits variability to a single interval.



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Notes:

Synchronize with cross-domain planning

Future product development tasks can't be pre-determined. Distribute planning and control to those who can understand and react to the end results.

—Michael Kennedy, *Product Development for the Lean Enterprise*

- ▶ All stakeholders meet face-to-face (but typically in multiple locations)
- ▶ Management sets the mission with minimum possible constraints
- ▶ Requirements and design happen
- ▶ Important stakeholder decisions are accelerated
- ▶ Teams create and take responsibility for plans



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Notes:

#8 Unlock the intrinsic motivation of knowledge workers

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Notes:

On managing knowledge workers

- ▶ Workers themselves are most qualified to make decisions about how to perform their work
- ▶ Workers must be heard and respected for management to lead effectively
- ▶ Knowledge workers have to manage themselves: they need autonomy
- ▶ Continuing innovation has to be part of the work and the responsibility of knowledge workers

Workers are knowledge workers if they know more about the work they perform than their bosses.

— Peter Drucker

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Notes:

#9 Decentralize decision-making

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Notes:

Decentralize decision-making

- ▶ Some decisions are strategic, have far-reaching impact, and are outside the scope, knowledge, or responsibilities of the teams. These should be centralized.
- ▶ Decentralize all others:
 - Frequent decisions
 - Time-critical decisions
 - Decisions that require local information
- ▶ Define the economic logic behind a decision; empower individuals and teams to actually make them.

Any inefficiency of decentralization costs less than the value of faster response time.


— Don Reinertsen,
Principles of Product
Development Flow

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Notes:

2.1 Apply the SAFe Principles in the role of a Scrum Master



Activity: Decentralized decision-making

Prepare
5 min

Share
3 min

- ▶ **Step 1:** Identify two or three currently centralized decisions that affect your team and would benefit from decentralization
- ▶ **Step 2:** Pick one of them and justify the benefits of decentralization
- ▶ **Step 3:** Identify the stakeholder(s) who would help you apply a decentralized model to decision-making in this case

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Notes:

#10 Organize around value

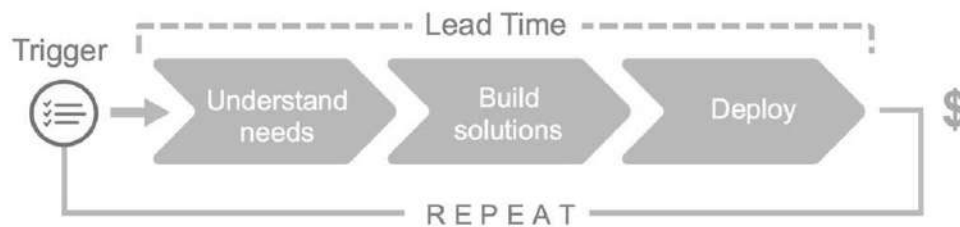
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Notes:

Value Streams

- ▶ A Value Stream is the sequence of steps used to deliver value to the customer
- ▶ It includes the whole sequence – concept or customer order – to delivery of value and/or receipt of cash
- ▶ It contains the people who do the work, the systems, and the flow of information and materials



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Notes:

2.1 Apply the SAFe Principles in the role of a Scrum Master

Organize around value


- ▶ The only sustainable competitive advantage is the speed with which an organization can respond to the needs of its customers with new and innovative solutions
- ▶ Business Agility demands that Enterprises organize around value to deliver more quickly
- ▶ When market and customer demands change, the Enterprise must quickly and seamlessly around that new value flow.



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Notes:




Activity: Building and presenting SAFe Principles poster

Prepare
17 min

Share
3 min

- ▶ **Step 1:** As a team, pick one SAFe Principle
- ▶ **Step 2:** Using a flip chart sheet and markers, represent the SAFe Principle with the following requirements:
 - Write your team's chosen SAFe Principle (e.g. Take an economic view)
 - Create an image that best exemplifies the SAFe Principle to your team (ex: graphic, image, illustration)
 - Include a concise statement about how, as a Scrum Master, you can apply the SAFe Principle in your organization
- ▶ **Step 3:** Present your poster to the class



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Notes:

Lesson review

In this lesson you:

- ▶ Discussed how to apply the SAFe Lean-Agile Principles

Notes:

Lesson 3

Exploring Agile and Scrum Anti-Patterns

Learning Objectives:

- 3.1 Explore anti-patterns associated with the Product Owner role
- 3.2 Explain how Stories and tasks may lead to anti-patterns
- 3.3 Identify context-specific anti-patterns in your environment



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3.1 Explore anti-patterns associated with the Product Owner role

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Notes:

Recognizing anti-patterns

As an Agile coach, the Scrum Master must learn to recognize anti-patterns in the process. An anti-pattern can be...

Structural or behavioral		Internal or external	
Structural example	Team has more than one Product Owner	Internal example	Developers don't work collaboratively on Stories
Behavioral example	Partially completed Stories are being carried over from Iteration to Iteration	External example	Lack of coordination with other teams leads to excessive WIP

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Notes:

Many anti-patterns can be traced to the PO role

Underperforming in the Product Owner role can lead to dysfunction on the team.

Key responsibilities of the Product Owner:

- ▶ Facilitate Team Backlog refinement
- ▶ Prepare for and participate in Iteration Planning
- ▶ Elaborate Stories and Enablers just-in-time
- ▶ Address team questions; be the voice of the customer
- ▶ Accept Stories
- ▶ Participate in the Iteration Review and Retrospective
- ▶ Coordinate with other Product Owners to manage dependencies



Notes:

3.1 Explore anti-patterns associated with the Product Owner role



Discussion: Anti-patterns that involve the Product Owner

Prepare



Share



- ▶ **Step 1:** As a team, brainstorm anti-patterns that may arise from the interaction between the Product Owner and the rest of the team
- ▶ **Step 2:** Discuss how you as a Scrum Master might address some of these anti-patterns
- ▶ **Step 3:** Share with the class



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Notes:

3.2 Explain how Stories and tasks may lead to anti-patterns

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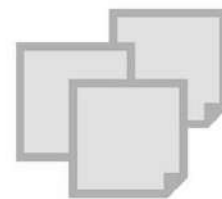
81

Notes:

Big Stories are a frequent source of anti-patterns

A team that can't iterate isn't able to inspect and adapt.

- ▶ Big Stories do not support team Iteration
- ▶ Smaller Stories allow for faster, more reliable implementation
- ▶ Splitting bigger Stories into smaller ones is an essential skill



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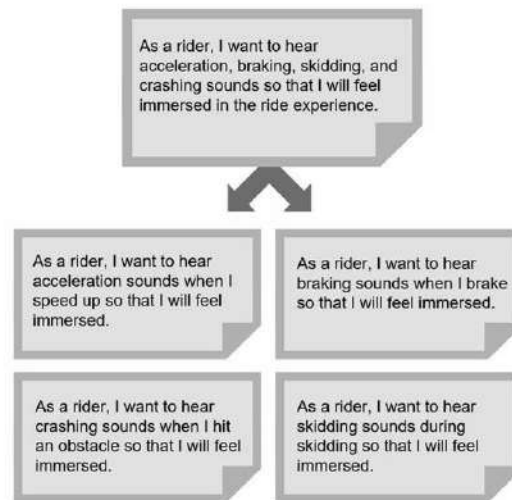
82

Notes:

3.2 Explain how Stories and tasks may lead to anti-patterns

Ways to split a Story

- By business rule variations
- By use case scenario
- By simplicity or complexity



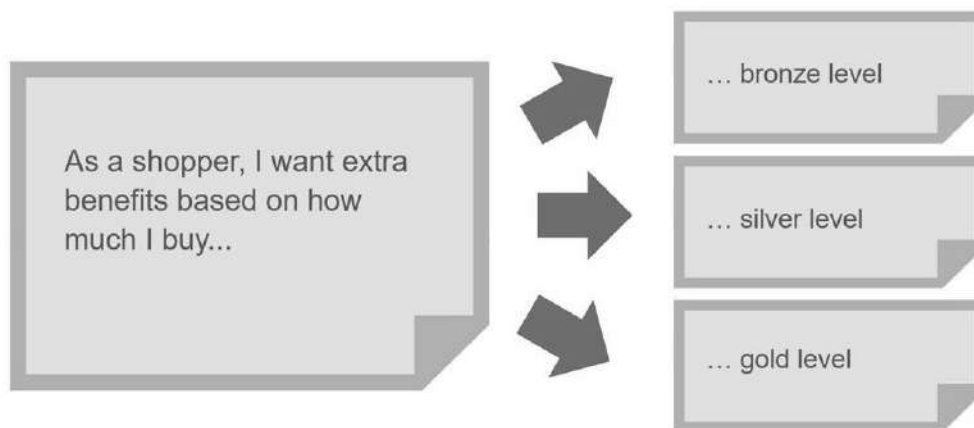
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Notes:

Split by business rule variations

Business rule variations often provide a straightforward splitting scheme.



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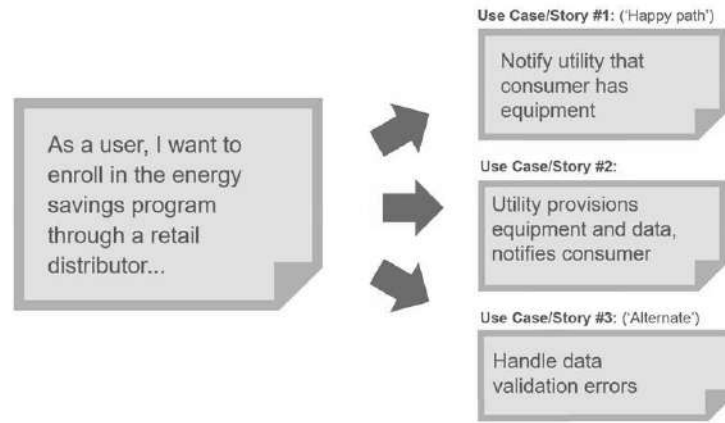
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Notes:

3.2 Explain how Stories and tasks may lead to anti-patterns

Split by use case scenarios

If use cases are used to represent complex interactions, the Story can be split via the individual scenarios.



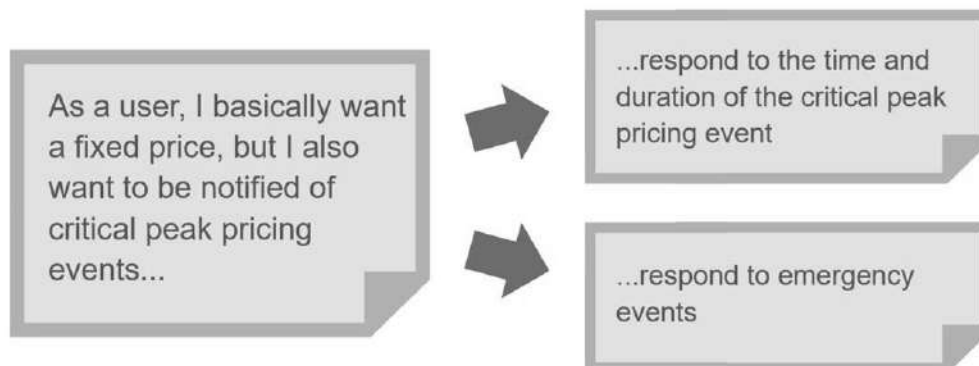
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Notes:

Split by simple/complex

Simplify. What's the simplest version that can possibly work?




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Notes:

3.2 Explain how Stories and tasks may lead to anti-patterns



Activity: Splitting Stories

Prepare
7 min

Share
3 min


- ▶ **Step 1:** Select a big Story from your actual backlog that is too big to complete in an Iteration
- ▶ **Step 2:** Using sticky notes and considering the patterns we discussed, split the Story into two or three smaller Stories that could be completed in an Iteration
- ▶ **Step 3:** Share with the class

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Notes:

3.2 Explain how Stories and tasks may lead to anti-patterns



Discussion: A Story that can't be split?

Prepare
3 min

Share
2 min

- ▶ **Step 1:** Consider the following scenario: Your team is insisting that big Stories in the backlog cannot be split into smaller ones.
- ▶ **Step 2:** As a team, discuss the following:
 - How might you coach the team to reconsider?
 - What specific steps would you take to shift their mindset?
- ▶ **Step 3:** Share with the class.

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Notes:

3.3 Identify context-specific anti-patterns in your environment

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Notes:

PO and Backlog, planning, and commitment anti-patterns

PO and Backlog

Product Owner and team do Iteration Planning without preparation

There is more than one PO per team

PO is not sufficiently involved during Iteration execution

Planning

Planning is based on tasks, not on User Stories and acceptance criteria

Commitment

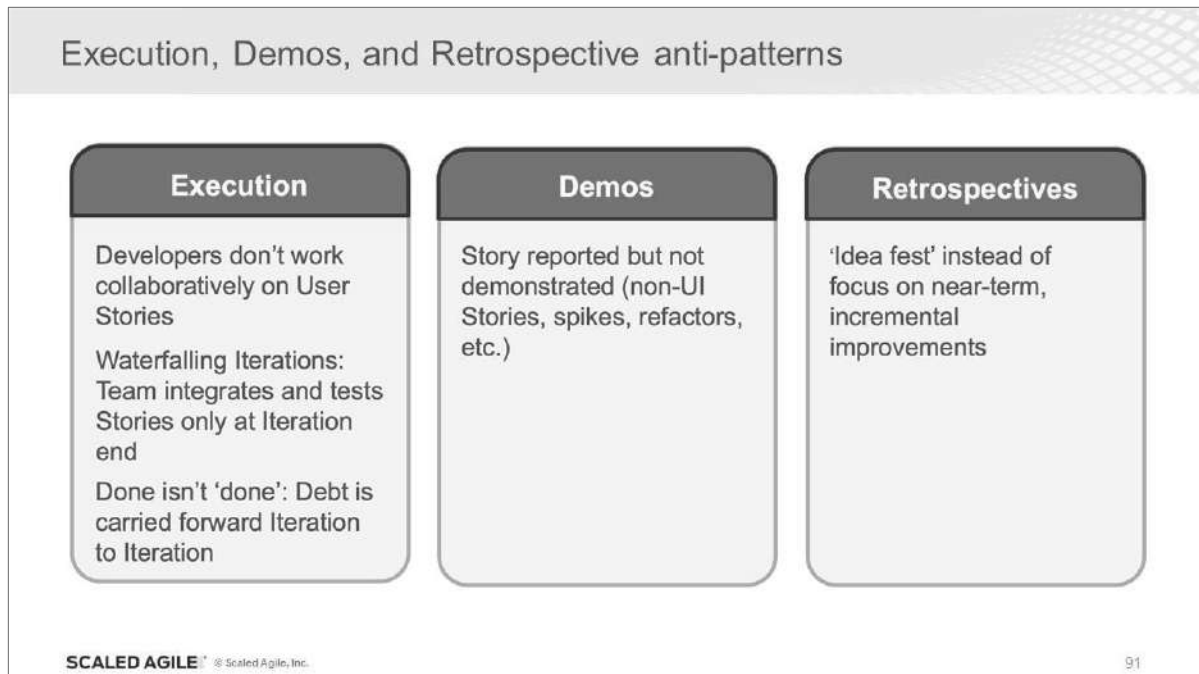
Team does not commit to clear Iteration goals

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Notes:

3.3 Identify context-specific anti-patterns in your environment



Notes:

3.3 Identify context-specific anti-patterns in your environment



Discussion: Anti-patterns

Prepare

8 min

Share

2 min

- ▶ **Step 1:** Discuss with your team:
 - Which of the anti-patterns resonate most strongly with you?
 - What other anti-patterns are you aware of?
 - Could these anti-patterns be fully resolved by the Scrum Master?
- ▶ **Step 2:** Pick two or three such anti-patterns, and for each one build a list of action items that would allow the Scrum Master to resolve it.
- ▶ **Step 3:** Share with the class.

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Notes:

Lesson review

In this lesson, you:

- ▶ Explored anti-patterns associated with the Product Owner role
- ▶ Explained how big Stories may lead to anti-patterns
- ▶ Identified context-specific anti-patterns in your environment

Notes:

Lesson 4

Facilitating Program Execution

Learning Objectives:

- 4.1 Synchronize development with the Agile Release Train
- 4.2 Organize teams around the flow of value
- 4.3 Plan the Program Increment
- 4.4 Execute the Program Increment
- 4.5 Enable teams to release value on demand
- 4.6 Prepare for the next PI Planning event



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4.1 Synchronize development with the Agile Release Train

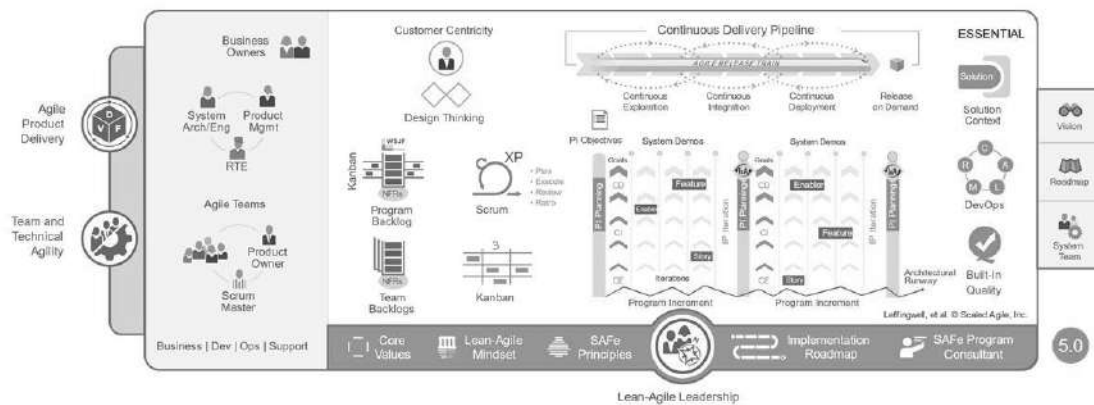
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Notes:

Agile Release Trains (ARTs) deliver Solutions

An ART is a long-lived, self-organizing team of Agile Teams.



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Notes:

4.1 Synchronize development with the Agile Release Train

The Agile Release Train



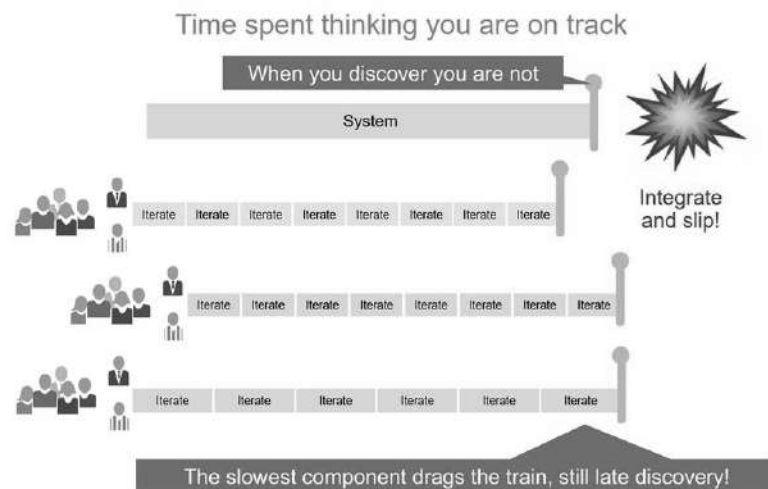
- ▶ A virtual organization of 5 – 12 teams (50 – 125+ individuals) that plans, commits, and executes together
- ▶ Program Increment (PI) is a fixed timebox; default is 10 weeks
- ▶ Synchronizes Iterations and PIs
- ▶ Aligns to a common mission via a single Program Backlog
- ▶ Operates under architectural and UX guidance
- ▶ Frequently produces valuable and evaluable system-level Solutions

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Notes:


Cadence without synchronization is not enough



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Notes:



Activity: Different cadences

Prepare
2 min

Share
2 min

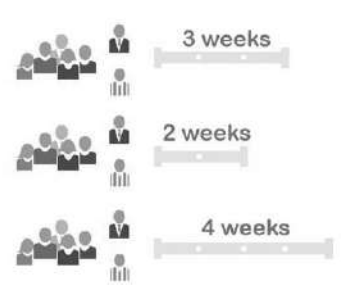
► **Step 1:** Consider a scenario in which three teams are working on different Iteration cadences.

- Team A: 2-week Iterations
- Team B: 3-week Iterations
- Team C: 4-week Iterations

► **Step 2:** As a team, discuss the following:

- If the teams start at the same time, when is the first point in time they can align on the Iteration outcomes?

► **Step 3:** Share with the class.

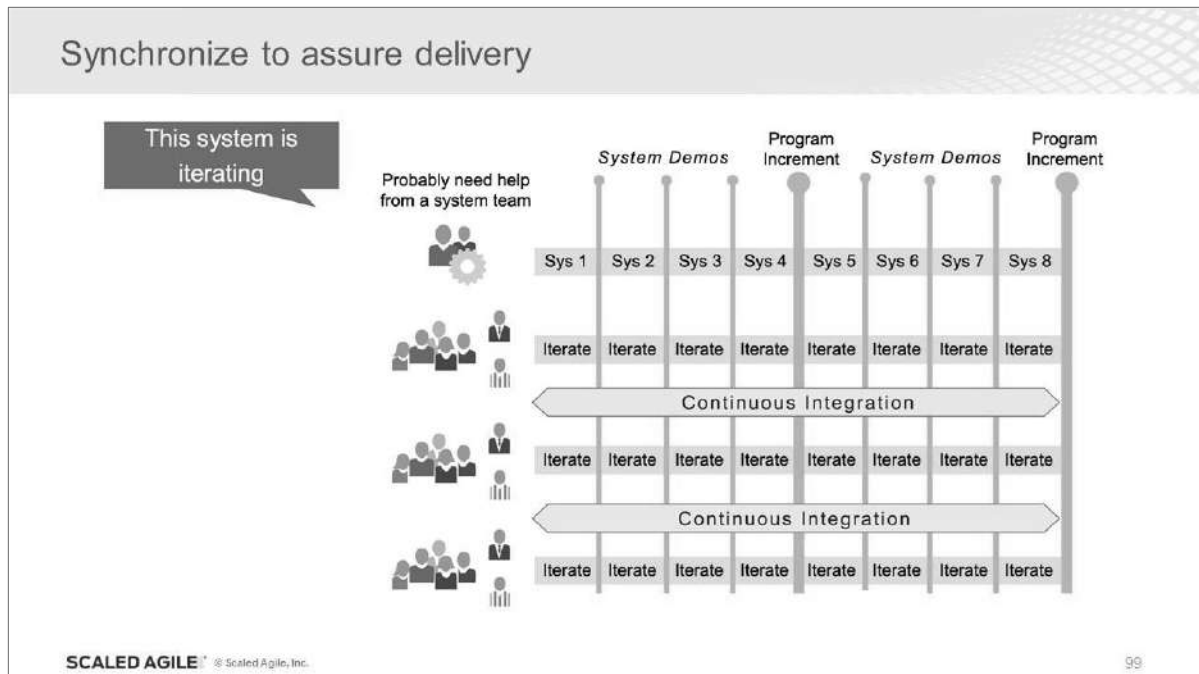


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Notes:

4.1 Synchronize development with the Agile Release Train



Notes:

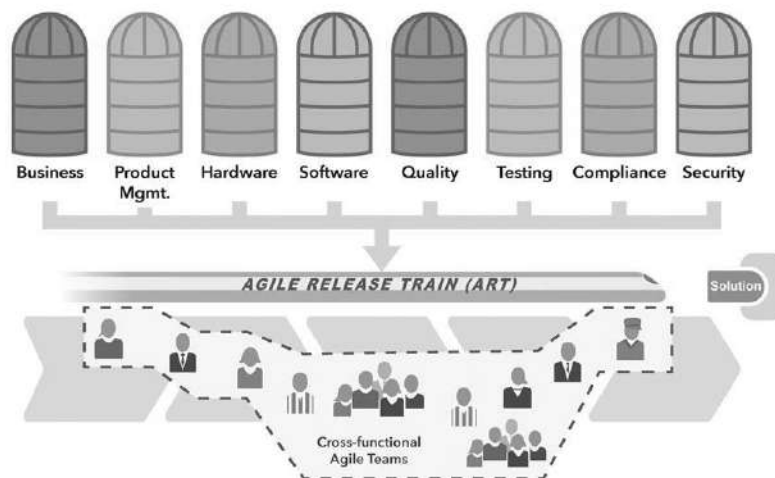
4.2 Organize teams around the flow of value

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Notes:

Build cross-functional Agile Release Trains



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Notes:

Organizing teams around value

Organize for the larger purpose

Maximize velocity by minimizing dependencies and handoffs while sustaining architectural robustness and system qualities.

A team can be organized around:

Features

Components

Far less desirable organizing factors:

Architectural layer

Platform, middleware, UI, DB, business logic, etc.

Other

Programming language, spoken language, technology, location

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Notes:

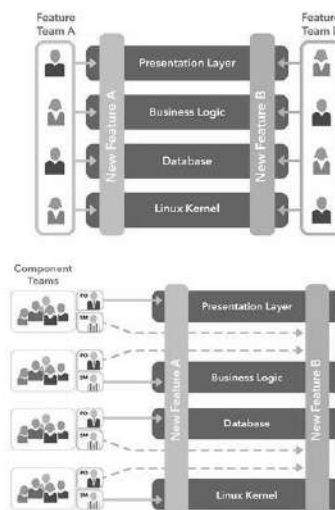
Finding the right trade-off: Feature and component teams

Use feature teams for:

- ▶ Increased velocity
- ▶ To minimize dependencies
- ▶ To develop T-shaped skills

Use component teams in case of:

- ▶ High reuse, high technical specialization, and critical NFRs
- ▶ Creating each component as a 'potentially replaceable part of the system with well-defined interfaces'

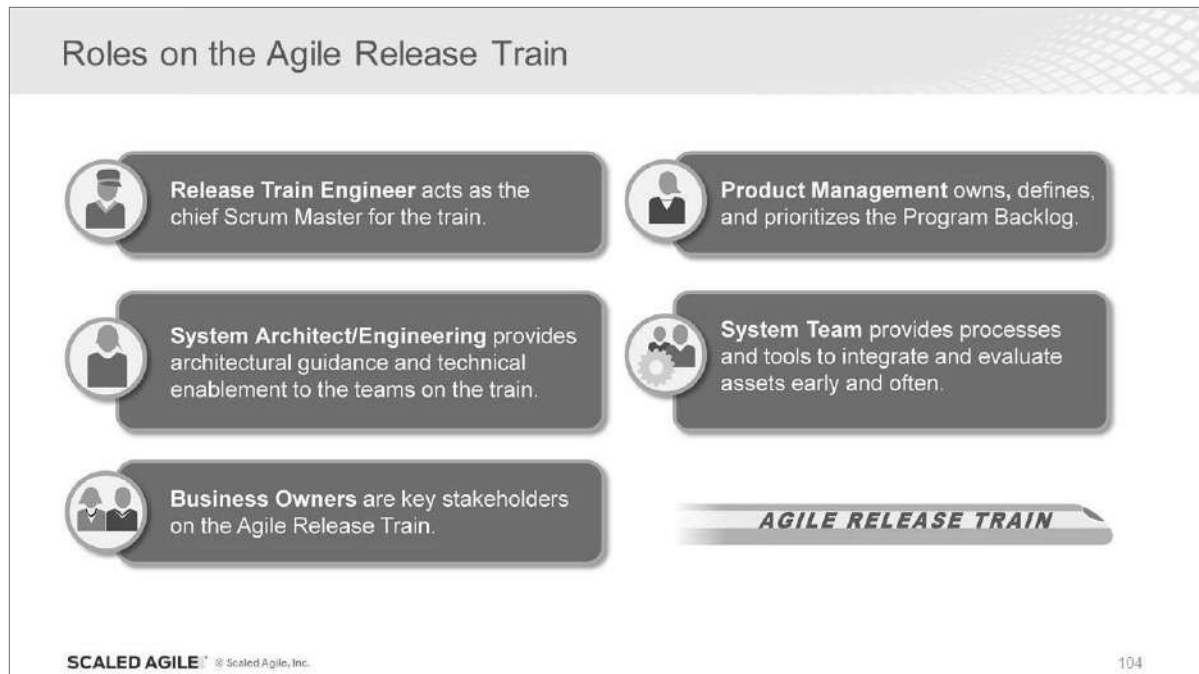


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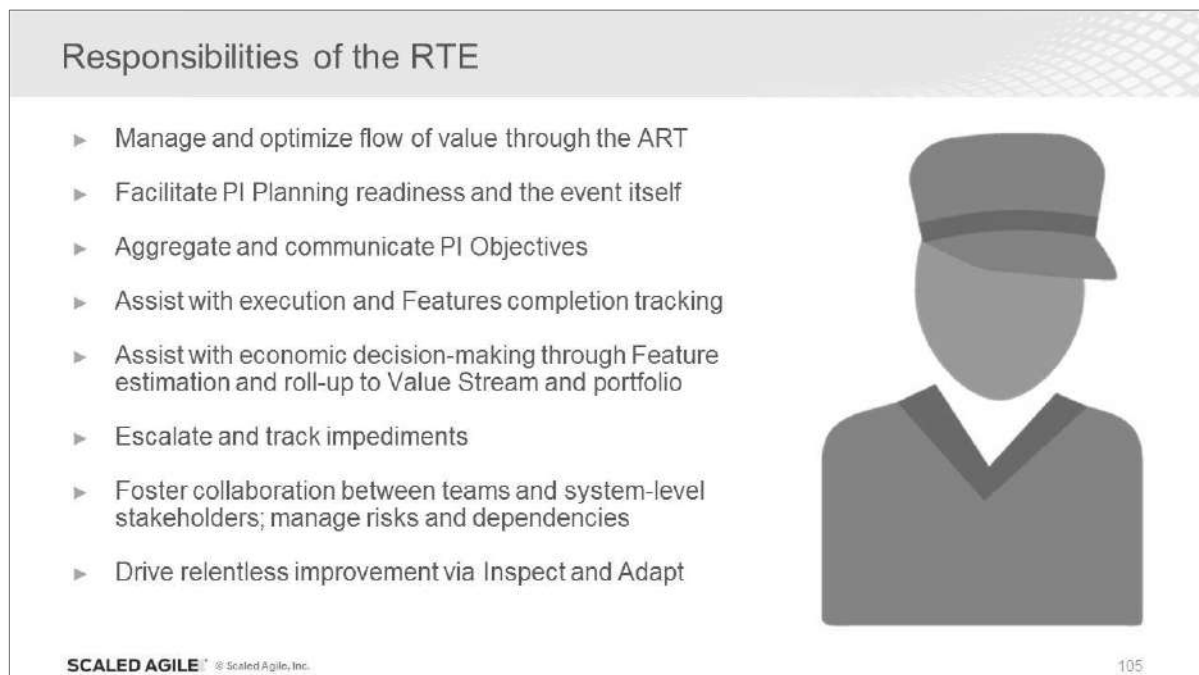
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Notes:

4.2 Organize teams around the flow of value



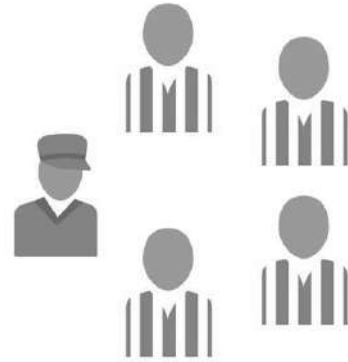
Notes:



Notes:

Operating as a community


- ▶ RTE is often the best fit to assist Scrum Masters in removing systemic impediments
- ▶ RTE and SMs see problems with the train/team structure firsthand
- ▶ Together RTE and Scrum Masters are able to take a systems view of the Agile Release Train
- ▶ Operating as a community is important
 - Regularly meet to discuss problems
 - Exchange experiences



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Notes:



Discussion: Scrum Master responsibilities

Prepare
3 min

Share
2 min

- ▶ **Step 1:** As a team, discuss the following:
 - What are your responsibilities as a member of the ART Scrum Master/RTE community that go beyond basic Agile Team facilitation?
 - What challenges might you face in performing this aspect of your role?
- ▶ **Step 2:** Share with the class.

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Notes:

The Product Management owns the Program Backlog

Assumptions about requirements need to be validated.

- ▶ Primary responsibilities of Product Management:
 - Understand customer needs; validate Solutions
 - Work with System Architect/Engineering to understand the value of Enablers
 - Develop and communicate Vision and Roadmap



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Notes:

The Product Management owns the Program Backlog (cont.)

Teams must quickly feed emerging knowledge back into the Solution.

- ▶ Manage and prioritize the flow of work to the program
- ▶ Prepare for and participate in PI Planning
- ▶ Define releases and program increments
- ▶ Participate in demos and Inspect and Adapt
- ▶ Build an effective Product Management/Product Owner team



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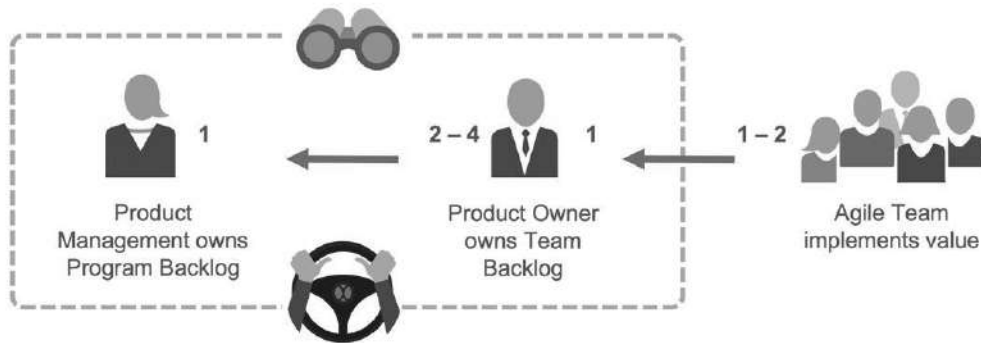
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Notes:

4.2 Organize teams around the flow of value

The PO/PM team steers the ART


At scale, a single person cannot handle product and market strategy while also being dedicated to an Agile Team.



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Notes:



Activity: Facilitating PO/PM collaboration

Prepare
3 min

Share
2 min

► **Step 1:** Discuss as a team:

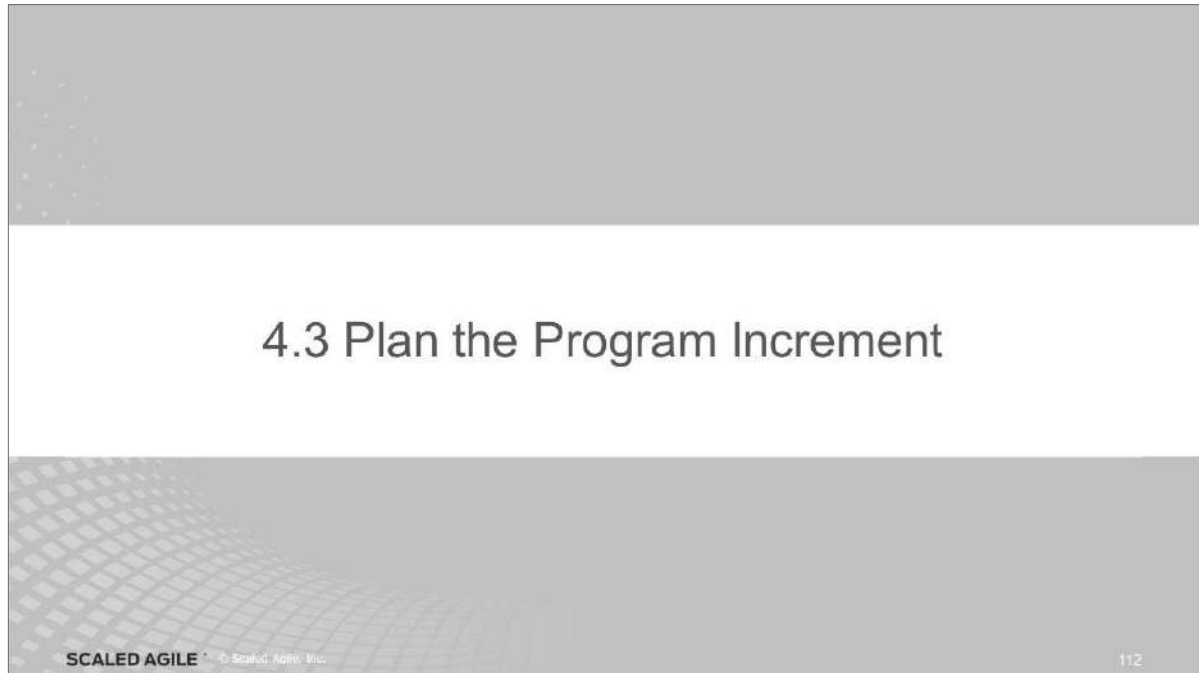
- Is your Product Owner effectively collaborating with Product Management?
- Is the Product Owner sufficiently empowered to represent the voice of the customer?
- How could you help facilitate PO/PM collaboration?

► **Step 2:** Share with the class.

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Notes:



Notes:



Video: Introduction to PI Planning





<https://vimeo.com/361407444/407333b725>

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Notes:

4.3 Plan the Program Increment

PI Planning

Program Increment (PI) Planning is a cadence-based, face-to-face event that serves as the heartbeat of the Agile Release Train (ART).

- ▶ Two days every 8 – 12 weeks (10 weeks is typical)
- ▶ Everyone attends in person if at all possible
- ▶ Product Management owns Feature priorities
- ▶ Agile Teams own Story planning and high-level estimates
- ▶ Architect/Engineering and UX work as intermediaries for governance, interfaces, and dependencies

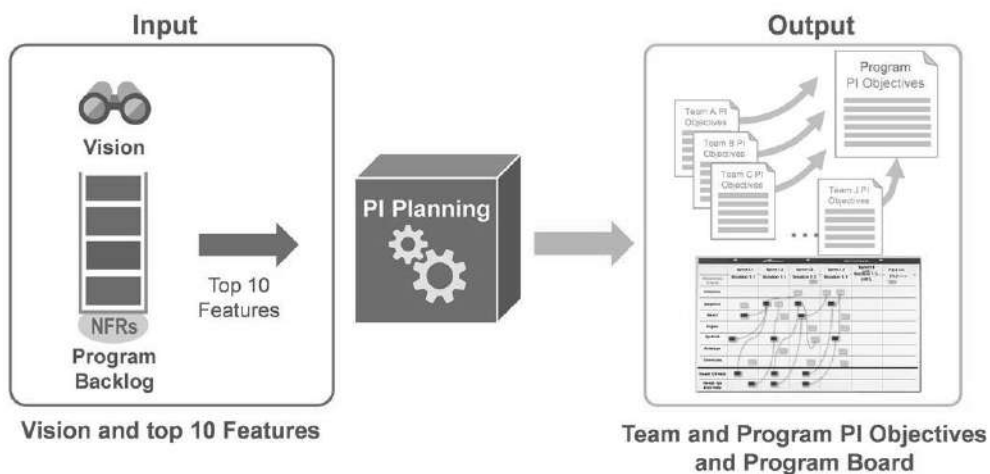


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Notes:

The PI Planning process




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Notes:

Day one agenda



Presented by RTE

8:00 ▶ 9:00	Business Context		▶ State of the business and upcoming objectives
9:00 ▶ 10:30	Product/Solution Vision		▶ Vision and prioritized Features
10:30 ▶ 11:30	Architecture Vision and development practices		▶ Architecture, common frameworks, etc. ▶ Agile tooling, engineering practices, etc.
11:30 ▶ 1:00	Planning context and lunch		▶ Facilitator explains planning process
1:00 ▶ 4:00	Team breakouts		▶ Teams develop draft plans and identify risks and impediments
4:00 ▶ 5:00	Draft plan review		▶ Architects and Product Managers circulate ▶ Teams present draft plans, risks, and impediments
5:00 ▶ 6:00	Management review and problem solving		▶ Adjustments made based on challenges, risks, and impediments


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Notes:

Business context

To kick off PI Planning, executive leadership shares the state of the business and upcoming objectives.

- ▶ There is no prescribed format, but some options include:
- ▶ Communicating the key portfolio priorities
- ▶ Analyzing the organization's strengths, weaknesses, opportunities, and threats (SWOT)



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Notes:

Product/Solution Vision

Product Management presents the Vision and the high-priority Features.



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Notes:

Architecture, User Experience (UX), and development practices

Architecture, UX, and development practices are high priorities in PI Planning, not afterthoughts!

- ▶ A System Architect presents the Vision for architecture, new architecture Epics, and common frameworks
- ▶ Development management may provide updates on Agile tooling and improvements in engineering practices
- ▶ UX professionals provide guidance around usability issues



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Notes:

4.3 Plan the Program Increment

Team breakout #1

- ▶ In breakouts, each team breaks down its Features into User Stories. Stories are estimated and placed into Iterations.
- ▶ There is a lot of back and forth between the teams, mostly about understanding and minimizing dependencies.



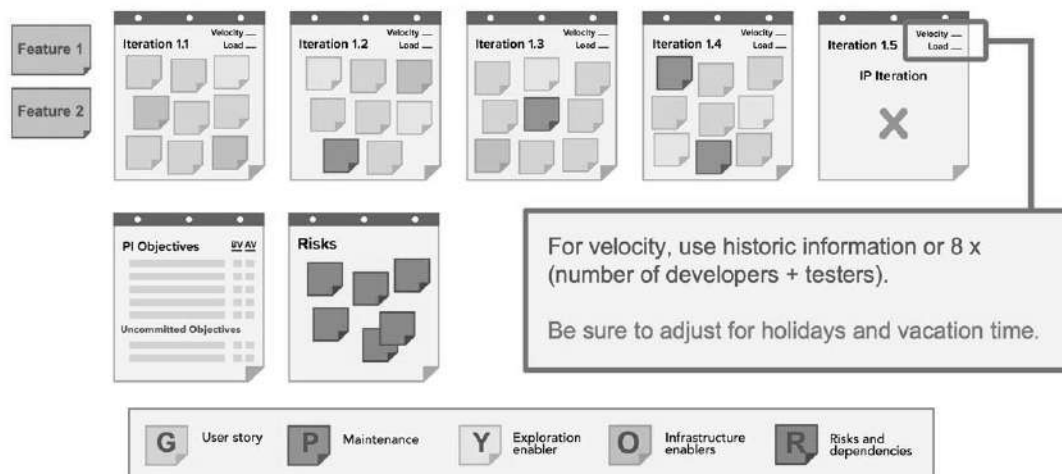
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Notes:


Team plan



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Notes:



Activity: Calculating capacity

Duration
5 min

- ▶ **Step 1:** Consider the following:
 - *There are nine teams on the train with velocities of 32, 48, 61, 30, 65, 18, 25, 62, 38 in the Iteration. The train operates on a five-iteration PI cadence (with the last Iteration reserved for Innovation and Planning).*
- ▶ **Step 2:** Discuss as a team, what is the ART's velocity?
 - NOTE: Each number above is expressed in Story points relevant to that team only, not comparable with other teams' numbers.

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Notes:

Starting fast with normalized Story points

Normalized estimation technique:



Example: Assuming a seven-person team composed of three developers, two testers, one Product Owner, and one Scrum Master, with no vacations.

Exclude Scrum Master and Product Owner from the calculation.

Estimated Capacity = $5 * 8 \text{ pts} = 40 \text{ pts/Iteration}$

- ▶ For every full-time developer and tester on the team, give the team eight points (adjust for part-timers).
- ▶ Subtract one point for every team member vacation day and holiday.
- ▶ Find a small Story that would take about a half-day to develop and a half-day to test and validate. Call it a 1.
- ▶ Estimate every other Story relative to that one.
- ▶ Never look back (don't worry about recalibrating).

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Notes:

Color-coding Stories

We color-code the backlog items to give visibility into the investments.

We can visually see that some teams may have significant backlog items dedicated to things like maintenance.

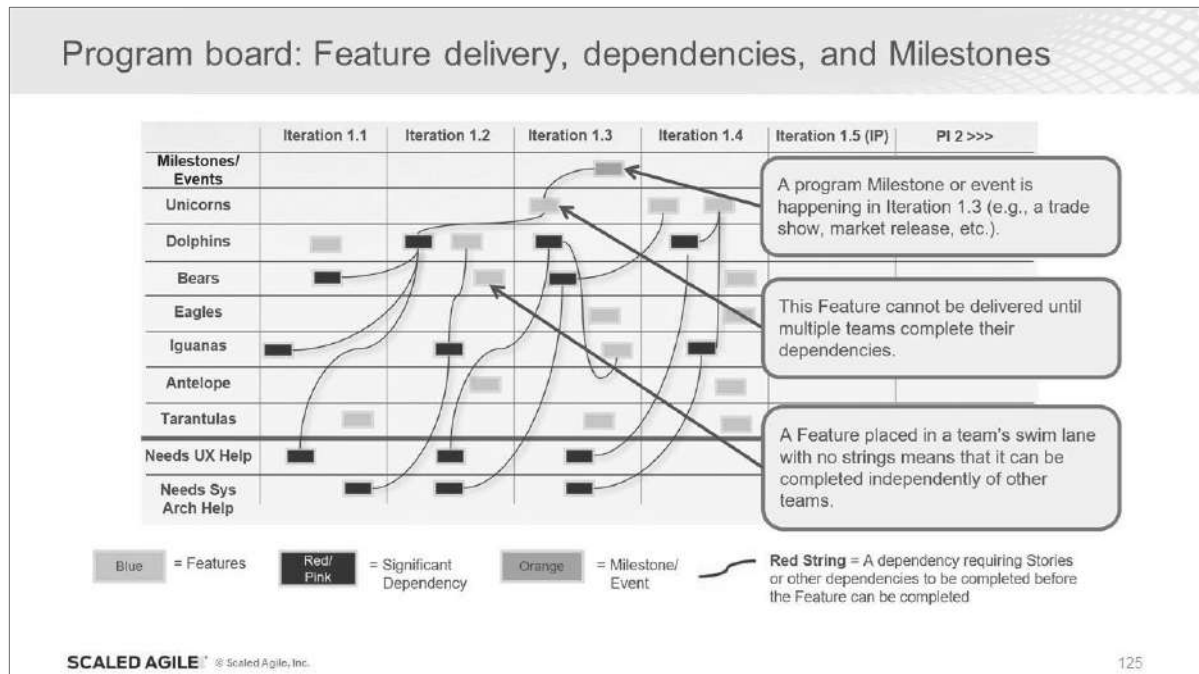


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Notes:

4.3 Plan the Program Increment



Notes:

4.3 Plan the Program Increment



Discussion: Identifying problems

Prepare



Share

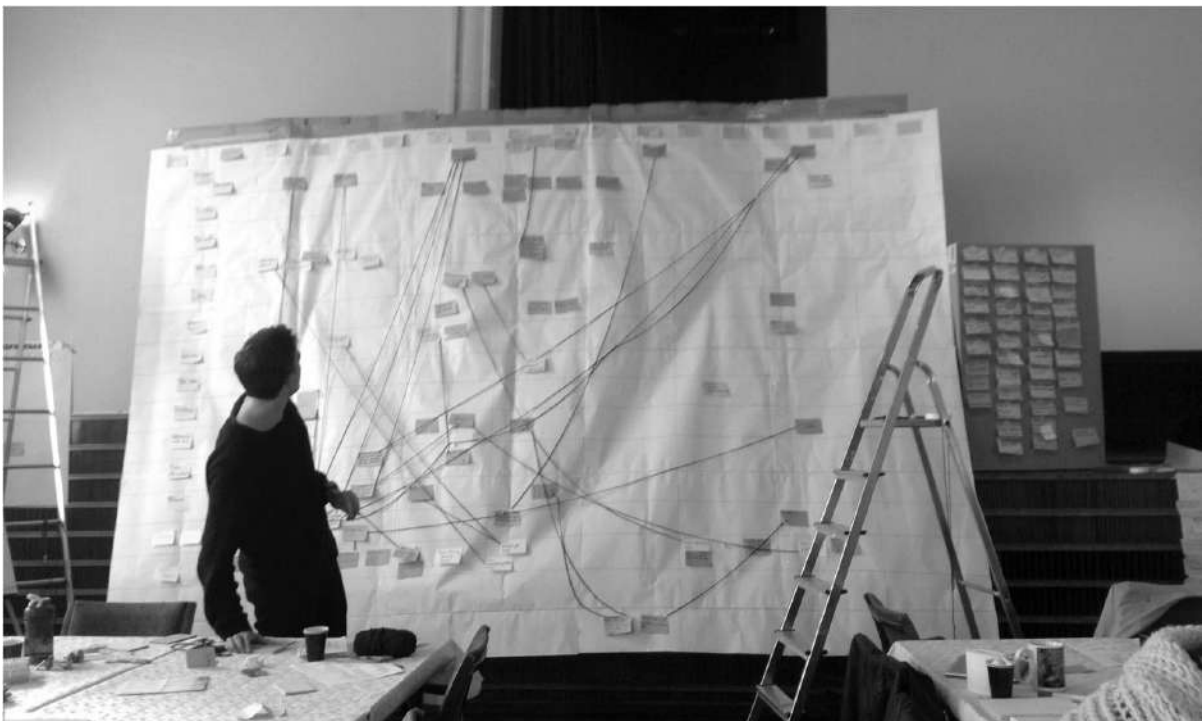


- ▶ **Step 1:** As a team, review the examples of program boards in your workbook.
- ▶ **Step 2:** Discuss the following:
 - What problems can you identify?
 - What can you do during PI planning? What can you do after PI planning?
- ▶ **Step 3:** Share with the class.

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Notes:



Example 1

4.3 Plan the Program Increment



Example 2

Align to a mission with PI Objectives

Objectives are business summaries of what each team intends to deliver in the upcoming PI.

Objectives often map directly to the Features in the backlog, but not always. Some examples:

- ▶ Aggregation of a set of Features, stated in more concise terms
- ▶ A Milestone, such as a trade show
- ▶ An Enabler Feature needed to support the implementation
- ▶ A major refactoring

Objectives for PI 1	BV	AV
1. Show routing calculations between the 5 most frequent destinations	10	
2. Navigate autonomously from distribution center to the most frequent destination	8	
3. Parallel park for a delivery	7	
4. Return to the distribution center after delivery	10	
5. Include traffic data in route planning	7	
6. Recall a delivery that is already in progress	7	
7. Reduce GPS signal loss by 25%	2	
Uncommitted Objectives		
8. Demonstrate real-time rerouting to avoid delays (e.g., accident, construction)	5	

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Notes:

Uncommitted objectives

Uncommitted objectives provide a reliability guard band. Uncommitted objectives count in velocity/capacity:

- ▶ They are planned; they aren't extra things for teams to do just in case you have time
- ▶ They are not included in the commitment, thereby making the commitment more reliable
- ▶ If a team has low confidence in meeting a PI Objective, encourage them to move it to uncommitted
- ▶ If an item has many unknowns consider moving it to uncommitted and add early spikes

Objectives for PI 1	BV	AV
1. Show routing calculations between the 5 most frequent destinations		
2. Navigate autonomously from distribution center to the most frequent destination		
3. Parallel park for a delivery		
4. Return to the distribution center after delivery		
5. Include traffic data in route planning		
6. Recall a delivery that is already in progress		
7. Reduce GPS signal loss by 25%		
Uncommitted Objectives		
8. Demonstrate real-time rerouting to avoid delays (e.g., accident, construction)		

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Notes:


Scrum of Scrums

The hourly Scrum of Scrums checkpoint helps keep teams on track and supports early identification of risk.

Hourly scrum of scrums planning checkpoint:

- ▶ Keeps teams on track with hourly planning Milestones
- ▶ Helps drive out risks, impediments, and dependencies

Notes:



Activity: Getting back on track with planning

Prepare
10 min

Share
5 min

- ▶ **Step 1:** Consider the following scenario:
 - *You are at the second SoS meeting. The planning radiator shows that your team is quite behind. Some Stories are estimated, but none of the Iterations are completely planned and the team is way too far from formulating the PI Objectives. This happened because the team got into too much detail with the first bunch of Stories they considered.*
- ▶ **Step 2:** The RTE made a clear suggestion that you need to use any tools at your disposal as well as any people in the planning room, but the team has to provide a draft plan at the end of the breakout. What would you do next?
- ▶ **Step 3:** Share with the class.

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Notes:

4.3 Plan the Program Increment

Draft plan review

Plans are peer-reviewed by all teams.

Draft plan review agenda:

1. Capacity and load
2. Draft PI Objectives
3. Program risks and impediments
4. Q&A



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Notes:

Management review and problem-solving

At the end of Day 1, management meets to make adjustments to scope and objectives based on the day's planning.

Common questions during the managers' review:

- ▶ What did we just learn?
- ▶ Where do we need to adjust Vision? Scope? Resources?
- ▶ Where are the bottlenecks?
- ▶ What Features must be de-scoped?
- ▶ What decisions must we make between now and tomorrow to address these issues?



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Notes:

4.3 Plan the Program Increment

Day Two



Presented by RTE

8:00 ▶ 9:00	Planning adjustments		▶ Planning adjustments made based on previous day's management meeting
9:00 ▶ 11:00	Team breakouts		▶ Teams develop final plans and refine risks and impediments ▶ Business Owners circulate and assign business value to team objectives
11:00 ▶ 1:00	Final plan review and lunch		▶ Teams present final plans, risks, and impediments
1:00 ▶ 2:00	Program risks		▶ Remaining program-level risks are discussed and ROAMed
2:00 ▶ 2:15	PI confidence vote		▶ Team and program confidence vote
2:15 ▶ ???	Plan rework if necessary		▶ If necessary, planning continues until commitment is achieved
After commitment	Planning retrospective and moving forward		▶ Retrospective ▶ Moving Forward ▶ Final Instructions

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Notes:

Make planning adjustments

Based on the previous day's management review and problem-solving meeting, adjustments are discussed.

Possible changes:

- ▶ Business priorities
- ▶ Adjustment to plan
- ▶ Changes to scope
- ▶ Movement of resources



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Notes:

Team breakout #2

Based on new knowledge (and a good night's sleep), teams work to create their final plans.

- ▶ In the second team breakout, Business Owners circulate and assign business value to PI Objectives from low (1) to high (10)
- ▶ Teams finalize the Program Increment plan
- ▶ Teams also consolidate program risks, impediments, and dependencies
- ▶ Uncommitted objectives provide the capacity and guard band needed to increase cadence-based delivery reliability


Objectives for PI 1	BV	AV
1. Show routing calculations between the 5 most frequent destinations	10	
2. Navigate autonomously from distribution center to the most frequent destination	8	
3. Parallel park for a delivery	7	
4. Return to the distribution center after delivery	10	
5. Include traffic data in route planning	7	
6. Recall a delivery that is already in progress	7	
7. Reduce GPS signal loss by 25%	2	
Uncommitted Objectives		
8. Demonstrate real-time rerouting to avoid delays (e.g., accident, construction)	5	

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Notes:

4.3 Plan the Program Increment



Activity: “We just don’t see much business value in it...”

Prepare
5 min

Share
3 min

► **Step 1:** Consider the following scenario:

- *Your team is at breakout session on Day 2. Business Owners ranked a PI Objective of “Building batch processing mechanism for indexing” as 2 and requested that you move it to stretch objectives, while in fact this function provides a critical architectural enablement to the entire program in this PI. The team is clearly disappointed and concerned that an important technical item is ranked so low. “We just don’t see much business value in it,” said the VP of Product.*

► **Step 2:** Considering the role of the Scrum Master, discuss:

- How would you solve the problem?
- What tools or techniques would you use in order to come to a solution?

► **Step 3:** Be prepared to share with the class.

Objectives for PI 1	BV	AV
1. Show routing calculations between the 5 most frequent destinations	10	
2. Navigate autonomously from distribution center to the most frequent destination	8	
3. Parallel park for a delivery	7	
4. Return to the distribution center after delivery	10	
5. Include traffic data in route planning	7	
6. Recall a delivery that is already in progress	7	
7. Reduce GPS signal loss by 25%	2	
Uncommitted Objectives		
8. Demonstrate real-time rerouting to avoid delays (e.g., accident, construction)	5	

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Notes:

Final plan review

Teams and Business Owners peer-review all final plans.



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Notes:

Building the final plan

- ▶ Final plans are collected at the front of the room
- ▶ Final plans are reviewed by all teams
- ▶ Business Owners are asked whether they accept the plan
- ▶ If so, the team's plan and program risk sheet are brought to the front of the room
- ▶ If not, the plans stay in place and the team continues planning after the review



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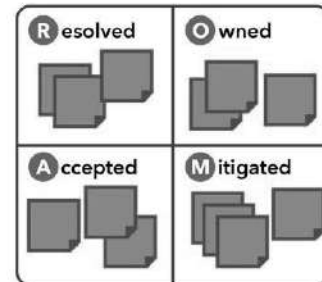
Notes:

4.3 Plan the Program Increment

Addressing program risks

After all plans have been presented, remaining program risks and impediments are discussed and categorized using ROAM:

- ▶ **Resolved:** Has been addressed; no longer a concern
- ▶ **Owned:** Someone has taken responsibility
- ▶ **Accepted:** Nothing more can be done; if risk occurs, release may be compromised
- ▶ **Mitigated:** Team has plans to adjust as necessary



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Notes:

Confidence vote

After dependencies are resolved and risks are addressed, a confidence vote is taken at the Team and the entire ART.



No confidence



Little confidence



Good confidence



High confidence



Very high confidence

A commitment with two parts:

1. Teams agree to do everything in their power to meet the agreed-to objectives
2. In the event fact patterns dictate that objectives are not achievable, teams agree to escalate immediately so that corrective action can be taken

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Notes:

Plan rework if necessary

What happens if there is low confidence? Rework!



No confidence




Little confidence

The PI Planning timebox:

- ▶ Just as the Iteration Planning meeting is timeboxed, so is the PI Planning meeting.
- ▶ Leaving the two-day planning meeting without a committed plan is not an option. Teams stay to rework their plans and 'ROAM' their risks and impediments.

Notes:

4.3 Plan the Program Increment

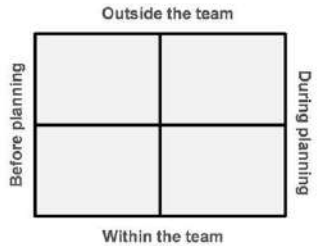


Activity: Being proactive about the confidence vote

Prepare
5 min

Share
3 min

- ▶ **Step 1:** As a team, explore the key factors that impact the team's confidence vote
- ▶ **Step 2:** Create a list of action items that you, as a Scrum Master, would consider to proactively enable a high confidence level on your team
- ▶ **Step 3:** Present the list of actions to the class
 - Hint: Split the sheet into four quadrants and explore action items in each quadrant.



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Notes:

Run a planning meeting Retrospective

The PI Planning meeting will evolve over time. Ending with a Retrospective will help it continuously improve.



Add the action items to your Program Backlog and take action

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Notes:

Moving forward

The moving forward portion describes what happens after PI Planning ends.

- ▶ Capture objectives and Stories in Agile project management tooling
- ▶ Aggregate Team PI Objectives to Program PI Objectives
- ▶ Set scrum of scrum cadence, release management team cadence, System Demo cadence, etc.
- ▶ Refine Program Backlog and prepare for next PI Planning events
- ▶ Summarize changes to engineering practices
- ▶ Clean up the room



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Notes:

4.4 Execute the Program Increment

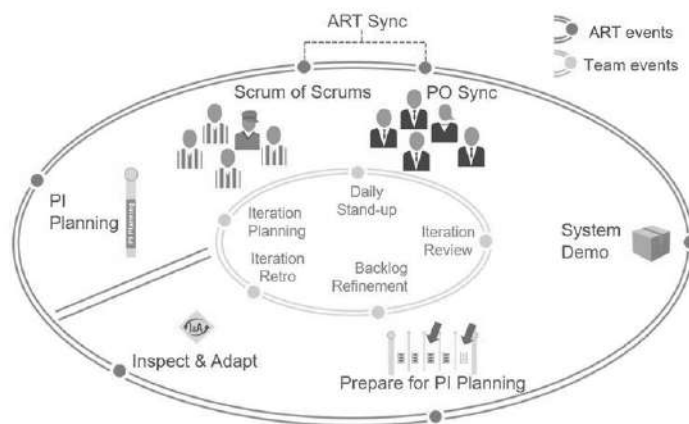
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Notes:

ART events

ART events create a closed-loop system to keep the train on the tracks.



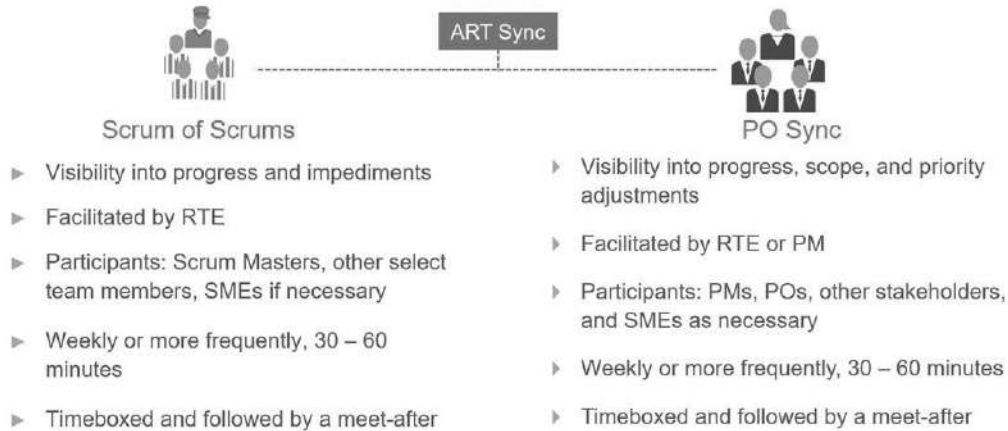
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Notes:

ART Sync is used to coordinate progress

ARTs coordinate dependencies through sync meetings.



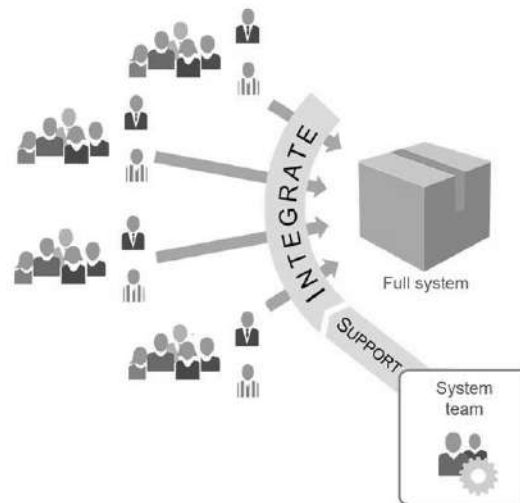
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Notes:

Demo the full system increment every two weeks

- ▶ Features are functionally complete or 'toggled' so as not to disrupt demonstrable functionality
- ▶ New Features work together and with existing functionality
- ▶ Follows the teams' demo (may lag by as much as one iteration, maximum)
- ▶ Demo from a staging environment, resembling production as much as possible




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Notes:

4.4 Execute the Program Increment



Discussion: "You let us down..."

Prepare
5 min

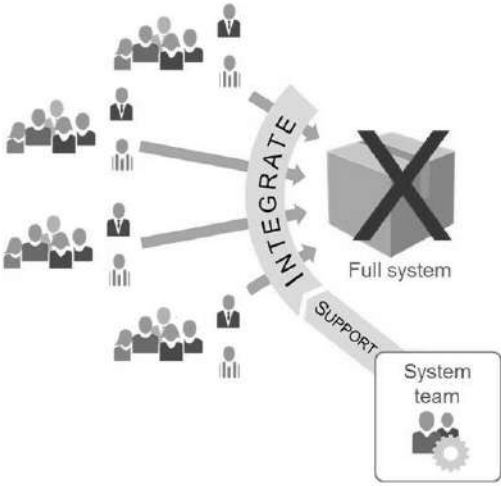
Share
2 min

► **Step 1:** Consider the following scenario:

- *This time the System Demo did not happen. All teams that had new product functionality merged their changes; your team was the last to merge, and the process didn't go well. You have nothing to show at the demo and other Scrum Masters are looking at you and judging you.*

► **Step 2:** Discuss as a team:

- From a Scrum Master perspective, what would you do?



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Notes:

4.4 Execute the Program Increment

Innovation and Planning Iteration

- ▶ Innovation: Opportunity for innovation spikes, hackathons, and infrastructure improvements
- ▶ Planning: Provides for cadence-based planning
- ▶ Estimating guard band for cadence-based delivery



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Notes:

IP Iteration calendar

Monday	Tuesday	Wednesday	Thursday	Friday
1	2	3	4	5
Buffer for leftover work				
Final verification and validation, and documentation (if releasing)				
Innovation				
PI planning readiness				
8	9	10	11	12
Innovation continues	Continuing education	PI planning		Optional time for distributed planning
PI planning readiness	Inspect and adapt workshop	Business context	Planning adjustments	
		Product / solution vision	Team breakouts	
		Architecture vision and development practices	Final plan review and lunch	
		Planning requirements and lunch	Program risks	
		Team breakouts	PI confidence vote	
		Draft plan review	Plan rework if necessary	
		Management review and problem-solving	Planning retrospective and moving forward	

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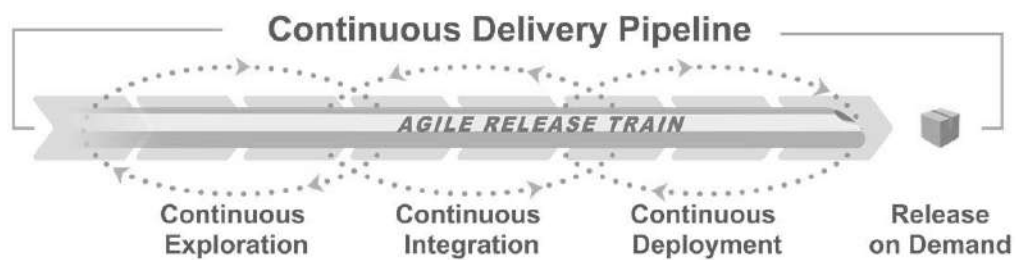
4.5 Enable teams to release value on demand

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Notes:

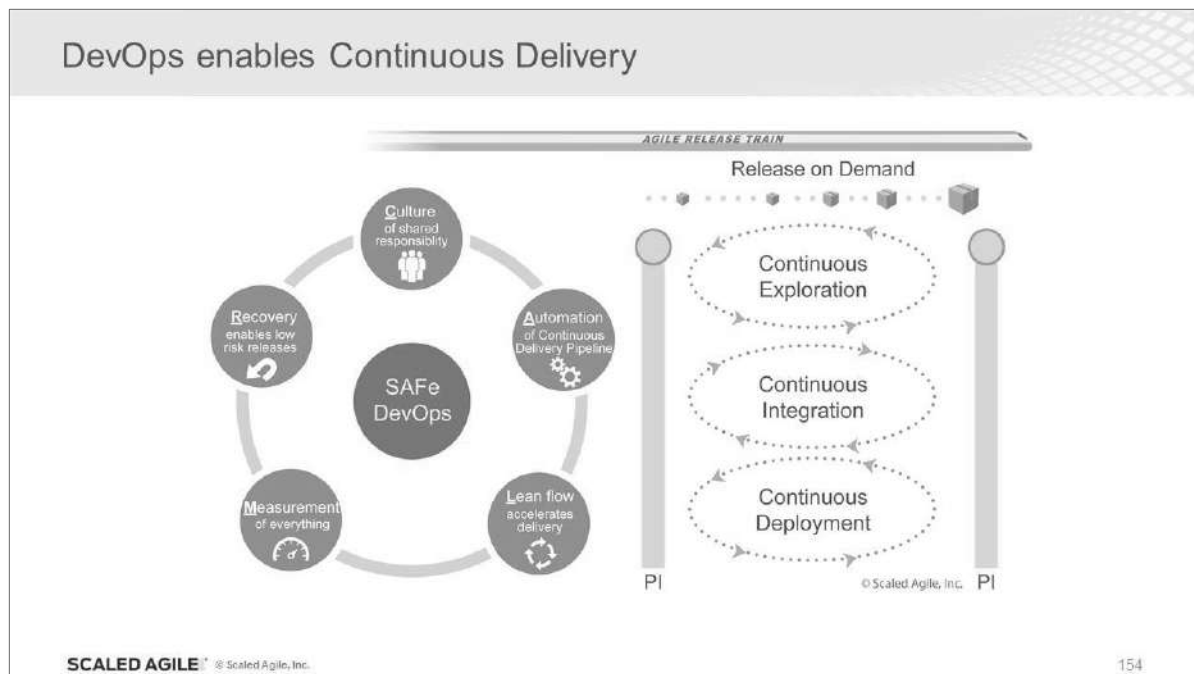
ARTs release value on demand



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Notes:



Notes:



Video: What is DevOps?

Duration

2 min



<https://vimeo.com/342037390/3a25026214>

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Notes:

Who is DevOps?



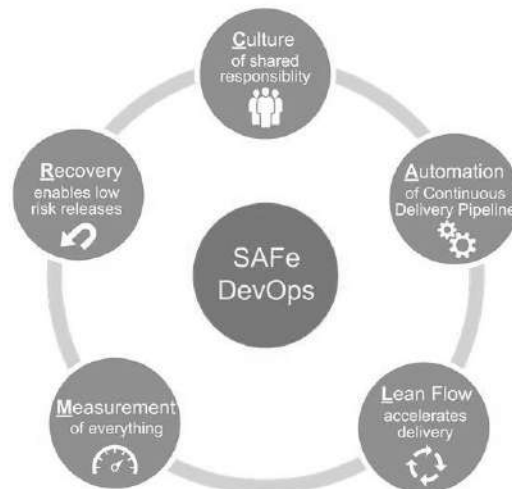
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Notes:

A CALMR approach to DevOps

- ▶ **Culture** - Establish a culture of shared responsibility for development, deployment, and operations.
- ▶ **Automation** - Automate the Continuous Delivery Pipeline.
- ▶ **Lean flow** - Keep batch sizes small, limit WIP, and provide extreme visibility.
- ▶ **Measurement** - Measure the flow through the pipeline. Implement full-stack telemetry.
- ▶ **Recovery** - Architect and enable low-risk releases. Establish fast recovery, fast reversion, and fast fix-forward.



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Notes:

Separate deploy from release

- ▶ Separate deploy to production from release
- ▶ Hide all new functionality under feature toggles
- ▶ Enable the ability to deploy and verify in production and Release on Demand



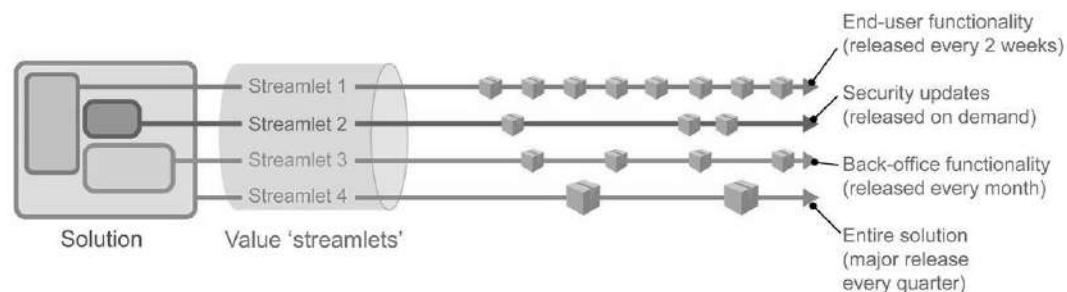
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Notes:

Decouple release elements from the total Solution


- ▶ Different parts of the Solution require different release strategies
- ▶ Architect the Solution to enable the various strategies and to shift them over time based on business demand



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Notes:



Activity: Improving flow

Prepare

5

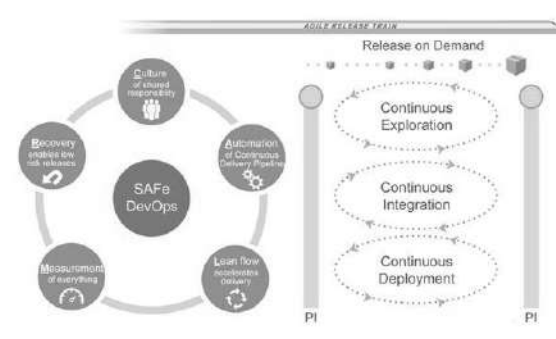
min

Share

5

min

- ▶ **Step 1:** Find a partner and think of three ideas that you can implement as a Scrum Master to improve flow through the Continuous Delivery Pipeline and DevOps
- ▶ **Step 2:** Find a new partner and share the three ideas you've had with each other
- ▶ **Step 3:** Prepare to share ideas with the class.



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Notes:

4.6 Prepare for the next PI Planning event

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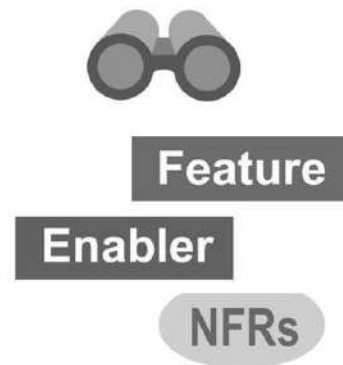
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Notes:

Key stakeholders prepare briefings

In preparation for PI Planning, leadership creates a series of briefings to set context.

- ▶ Executive briefing: State of the business and upcoming objectives
- ▶ Product Vision briefing(s): Vision and top 10 Features
- ▶ Architectural Vision briefing: Vision for architecture, new architectural Epics, common frameworks, and more
- ▶ Development context: Changes to standard practices, new tools and techniques, and more



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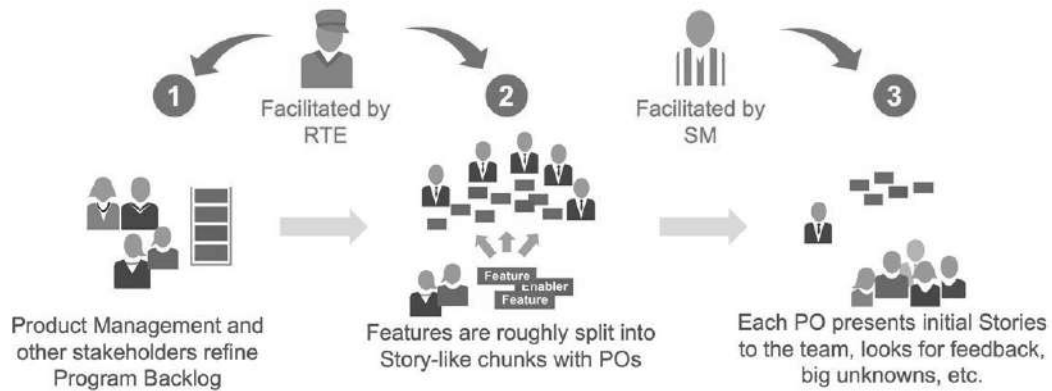
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Notes:

4.6 Prepare for the next PI Planning event

New PI content should not be a surprise

Upfront presentation of content to the teams solves a lot of problems later during PI Planning.



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Notes:

Lesson review

In this lesson you:

- ▶ Explained synchronized development with the Agile Release Train
- ▶ Discussed how to organized teams around the flow of value
- ▶ Explored how to ensure PI Planning is successful
- ▶ Discussed Program Increment execution
- ▶ Explored how to enable the teams to released value on demand
- ▶ Explored how to prepared for the next PI Planning event

Notes:

Lesson 5

Improving Flow with Kanban and XP

Learning Objectives:

- 5.1 Build your Kanban board
- 5.2 Measure and optimize flow
- 5.3 Build quality in
- 5.4 Foster engineering craftsmanship
- 5.5 Facilitate collaboration with Architects, System Team, and Operations



SAFe® Authorized Course Attending this course gives students access to the SAFe® Advanced Scrum Master exam and related preparation materials.



Notes:

5.1 Build your Kanban board



Video: Designing your team's Kanban system

Duration
4 min



Designing Your Team's Kanban System

Part 1: Kanban Video Series

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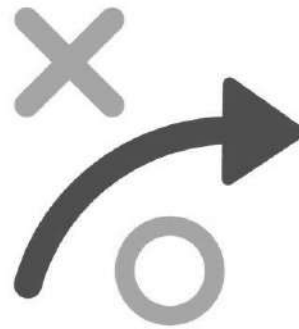
Notes:

5.1 Build your Kanban board

Kanban description

Primary aspects for applying Kanban in development:

- ▶ The progress of items is track by visualizing all work
- ▶ Teams agree on specific WIP limits for each state and change them when necessary to improve flow
- ▶ Policies are adopted to specify the management of work
- ▶ Flow is measured
- ▶ Classes of service are used to prioritize work based on the Cost of Delay (CoD)

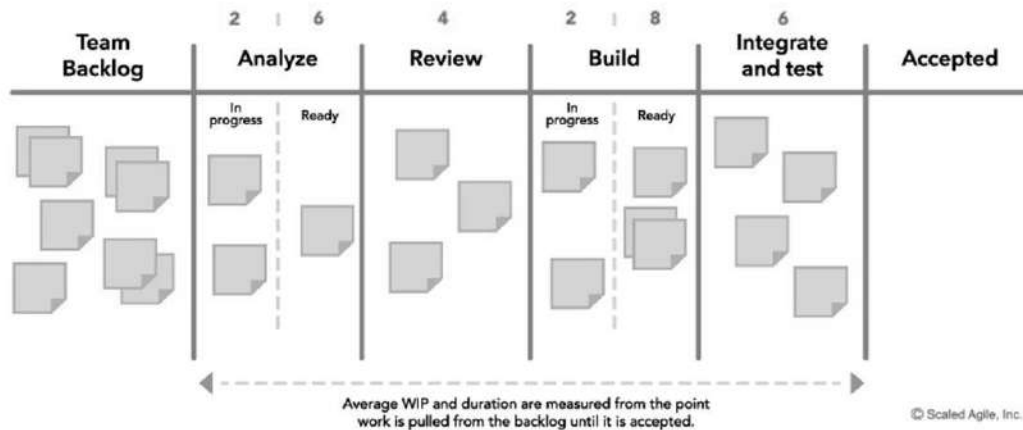


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Notes:

One team's initial Kanban board



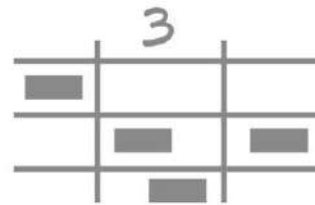
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Notes:

Applicability

- ▶ Kanban perfectly extends Scrum by providing granular pull mechanisms that drive more effective Iteration execution
- ▶ Kanban connects capacity-based planning in scrum with a throughput-based approach
- ▶ It helps improve Iteration outcomes
- ▶ It allows better visibility into the progress of work based on the team-specific workflow




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Notes:

5.1 Build your Kanban board

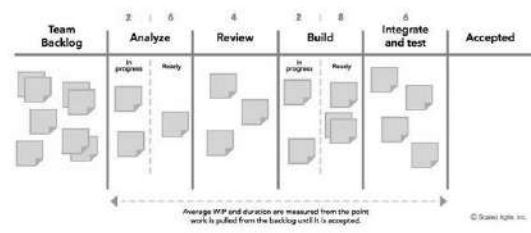


Activity: Build your own Kanban board

Prepare
12 min

Share
3 min

- **Step 1:** As a team, pick one context from any of the team members
- **Step 2:** Build a team Kanban board using the example previously discussed
- **Step 3:** Present your board to the class



Average WIP and duration are measured from the point work is pulled from the backlog until it is accepted.

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Notes:

5.2 Measure and optimize flow

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Notes:



Video: Kanban - Measuring and Improving

Duration
3 min



<https://vimeo.com/339426416/cea70af581>

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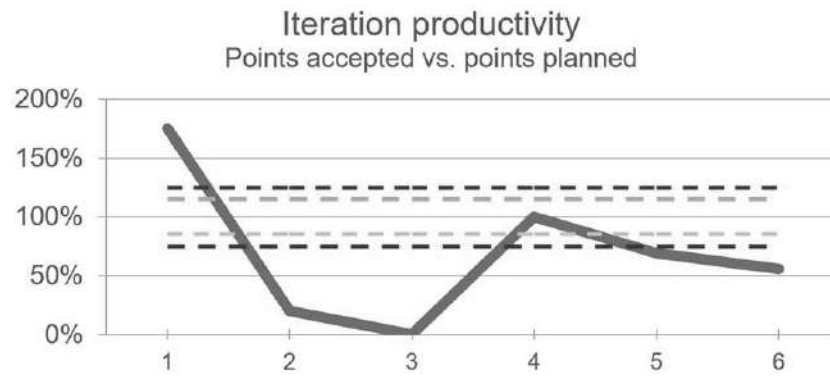
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Notes:

Percent point accepted vs. points planned

The buffet rule: "Take all you want, but eat all you take"

— Jay Packlick



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Notes:



Discussion: Iteration KPIs (key performance indicators)

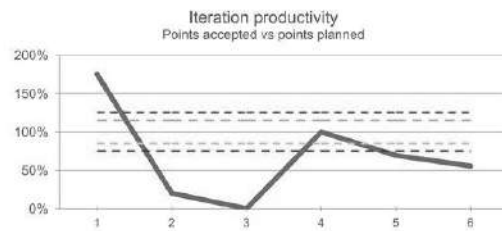
Prepare



Share



- **Step 1:** As a team, discuss what KPI the example illustrates
- **Step 2:** Share with the class how you, as a Scrum Master, can improve flow and predictability



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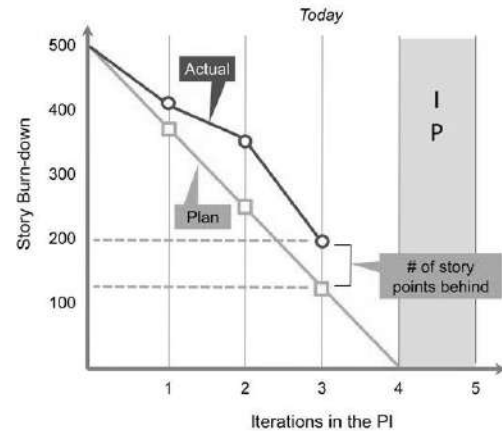
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Notes:

Program execution Metrics: PI burn-down chart

The PI burn-down chart shows the progress being made toward the Program Increment timebox.

- ▶ The horizontal axis of the PI burn-down chart shows the Iterations within the PI
- ▶ The vertical axis shows the aggregated amount of work (Story points) remaining at the start of each Iteration for the ART
- ▶ Iteration boundaries provide the most meaning



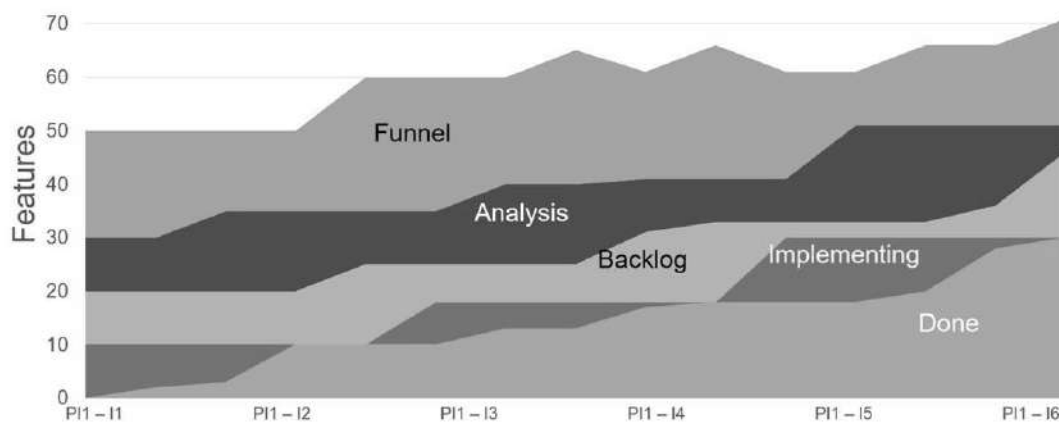
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Notes:

Program execution Metrics: Cumulative flow diagram (CFD)

The CFD is made up of a series of lines or areas representing the amount of work in the different Kanban states.



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Notes:

Typical program measures in a CFD

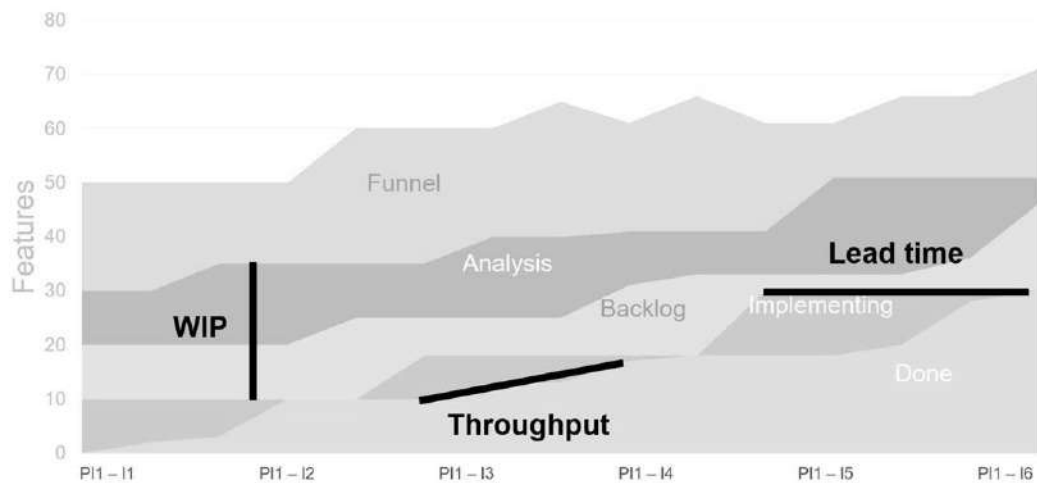
- ▶ **Lead time** - The time a backlog item spends in the system after it has been pulled from the backlog and before it is accepted.
- ▶ **WIP in the system** - The number of backlog items currently in process (all items between funnel and done).
- ▶ **Throughput** - The number of items that can be finished per unit of time.

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Notes:

Reading cumulative flow diagrams




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Notes:

5.2 Measure and optimize flow



Activity: Reading cumulative flow diagrams

Prepare

5 min

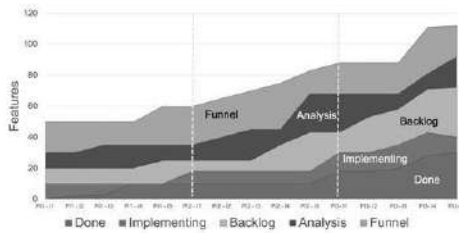
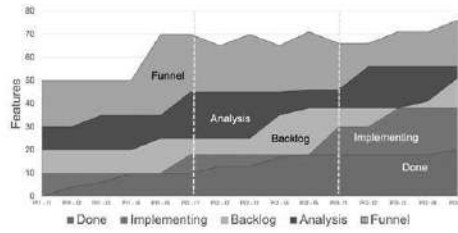
Share

2 min

► **Step 1:** Review the two CFD example charts in your workbook. Write down the following:

- What problems do you see?
- How do you know these are problems?

► **Step 2:** Be prepared to share with the class.

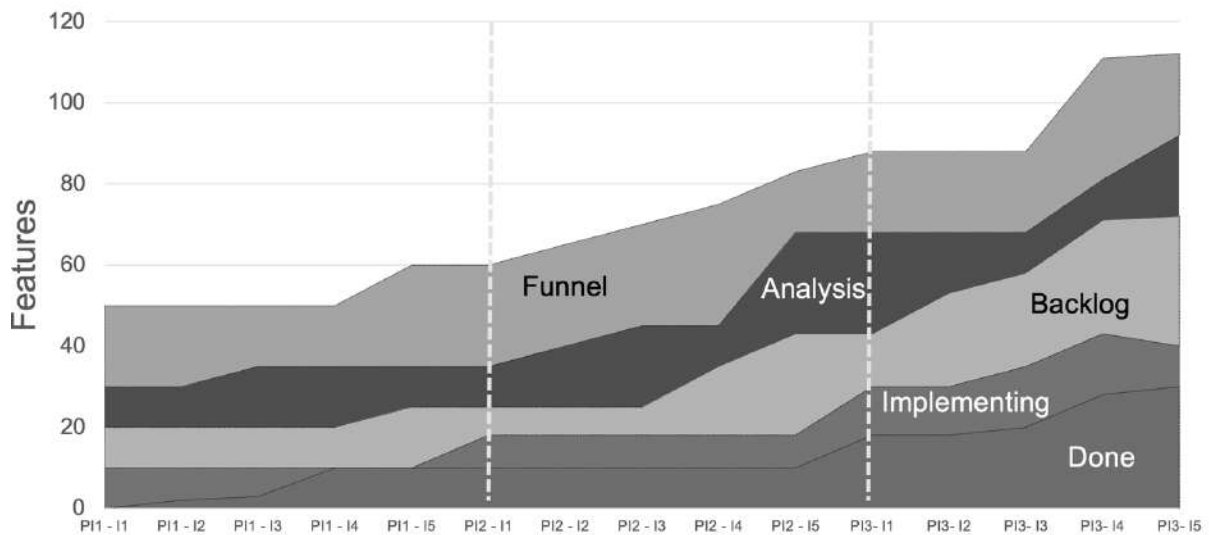



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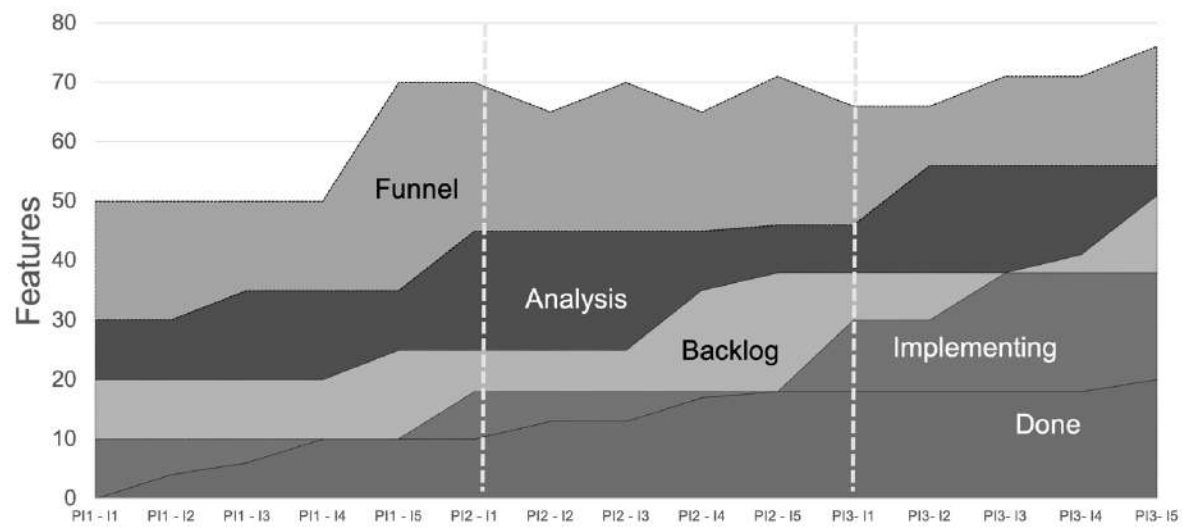
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Notes:

Example 1

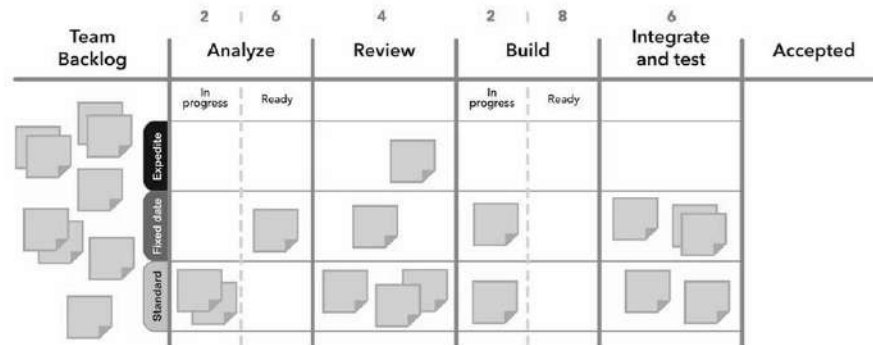


Example 2



Classes of service to adjust flow


- ▶ **Standard** - Operate normally. Adhere to WIP limits.
- ▶ **Fixed Date** - Adhere to WIP limits. Must be pulled from the backlog early enough.
- ▶ **Expedite** - Can violate WIP limits. No more than one item at a time.



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Notes:



Discussion: Classes of service

Prepare
3 min

Share
2 min

- ▶ **Step 1:** Provide examples where the three classes of service would apply in your context
- ▶ **Step 2:** Discuss what the potential sources of 'Fixed Date' and 'Expedite' items could be
- ▶ **Step 3:** Be prepared to share with the class

Standard

Fixed date

Expedite

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Notes:

5.3 Build quality in

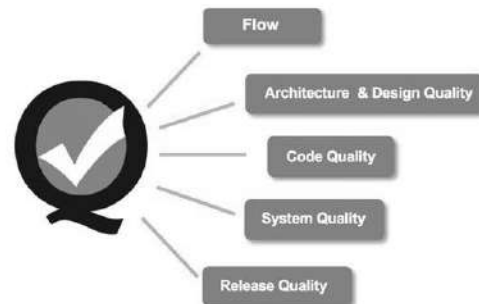
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Notes:

Built-in Quality

- ▶ Ensures that every increment of the Solution reflects quality standards
- ▶ Is required for sustainably high development velocity
- ▶ Includes Continuous Integration, test-first, refactoring, pair work, collective ownership, and more (for software quality practices mostly inspired by XP)
- ▶ Is supported in hardware by exploratory, early iterations, frequent system-level integration, design verification, MBSE, and set-based design



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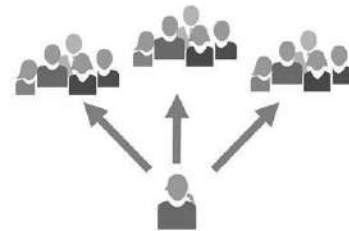
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Notes:

Emergent design and intentional architecture

Every team deserves to see the bigger picture.
Every team is empowered to design its part.

- ▶ **Emergent design** - Teams grow the system design as User Stories require
- ▶ **Intentional architecture** - Fosters team alignment and defines the Architectural Runway



A balance between emergent design and intentional architecture is required for speed of development and maintainability.

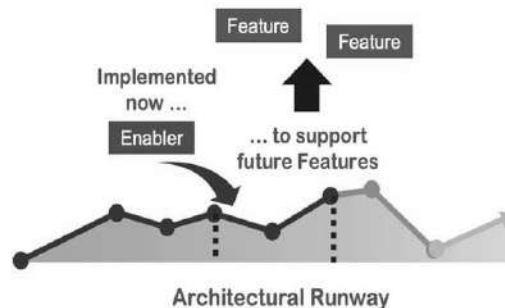
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Notes:

Architectural Runway

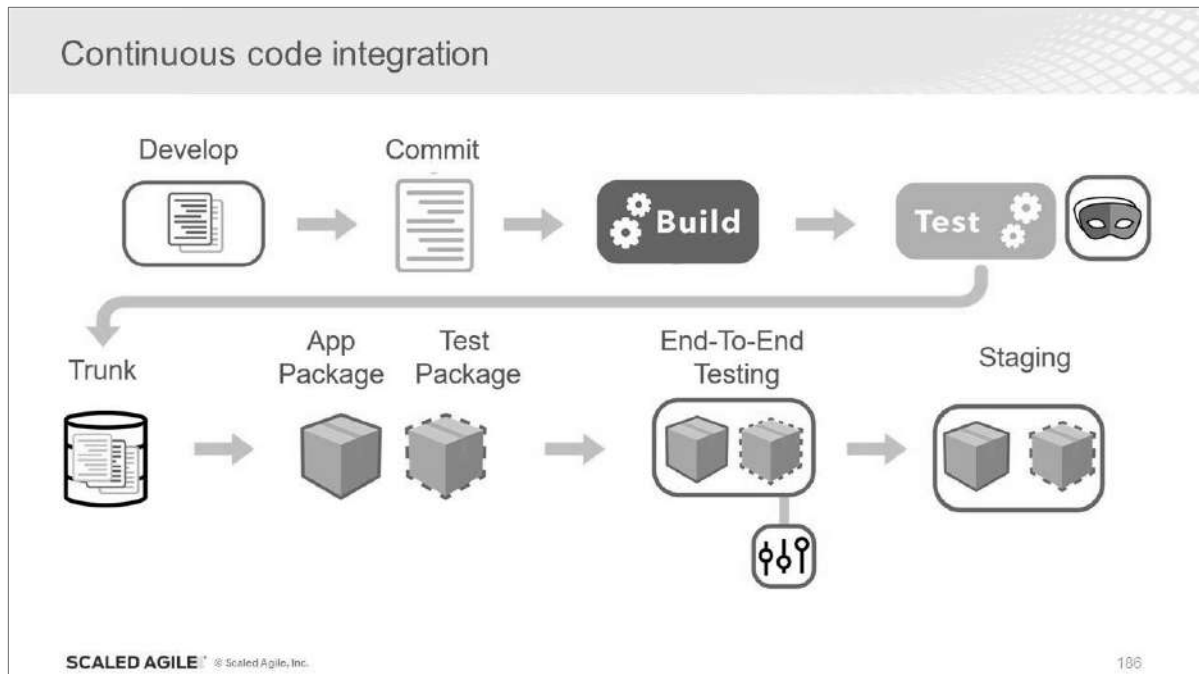
- ▶ Existing code, components, and technical infrastructure needed to implement near-term features without excessive redesign and delay
- ▶ Supports the continuous flow of value through the Continuous Delivery Pipeline



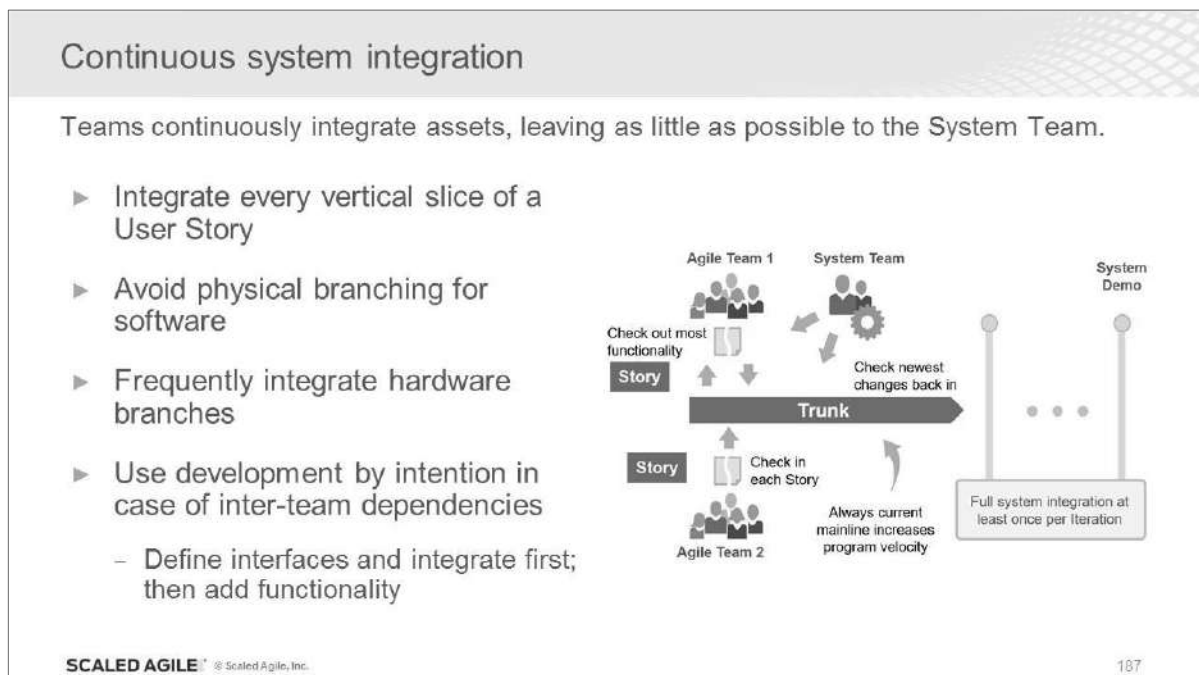
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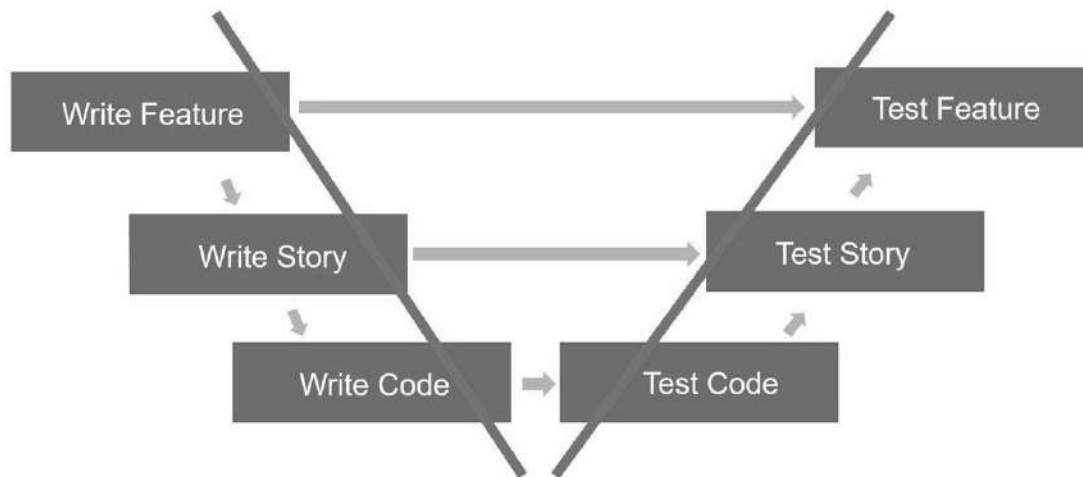


Notes:



Notes:

Traditional testing (V-Model) delays feedback

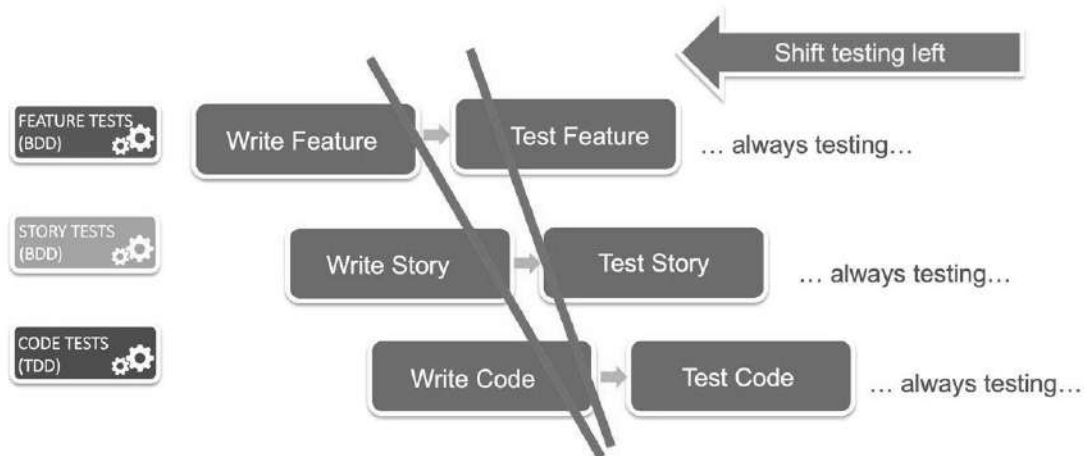


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Notes:


Shift testing left for fast and continuous feedback



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Notes:




Activity: Integration and ART velocity (part 1)

Prepare
5 min

Share
3 min


- ▶ **Step 1:** Each table team is assigned **A** or **B**
- ▶ **Step 2:** Each table team **A** is assigned a team **B** partner table, not right next to each other
- ▶ **Step 3:** Each team will build its own component, as shown in the picture. Use standard sticky notes and the scissors at your table to build your component
 - **Note:** The partnered teams **cannot** communicate with each other



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Notes:



Activity: Integration and ART velocity (part 2)

Prepare
5 min

Share
3 min

- ▶ **Step 4:** Once your team is done building your components, put them together for every pair of teams.
 - What do the results look like?
 - Is any rework required?
- ▶ **Step 5:** Based on what we've just seen, what impact does late cross-team integration have on the program's velocity?

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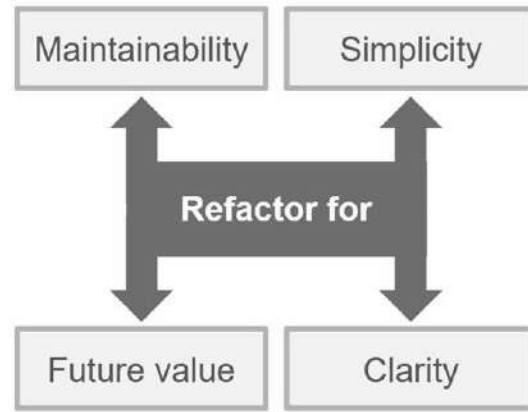
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Notes:

Refactoring

Refactoring allows teams to maintain high velocity.

- ▶ It is impossible to predict requirements or design in detail
- ▶ Refactoring allows teams to quickly correct the course of action
- ▶ Emergent design is impossible without continuous refactoring
- ▶ Most User Stories will include some refactoring effort
- ▶ If technical debt is big—teams track and implement as separate backlog items—then it's time to refactor



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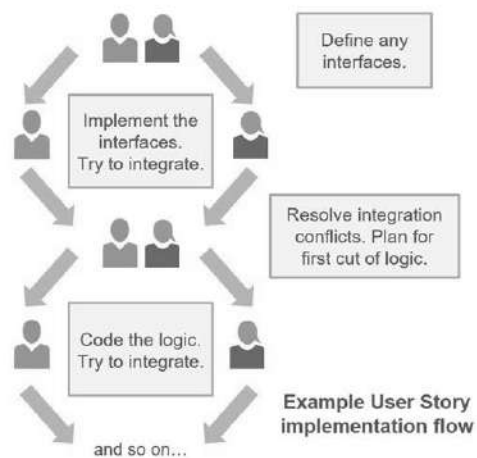
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Notes:

Pair work

Pair work improves system quality, design decisions, knowledge sharing, and team velocity.

- ▶ Pair work is:
 - Broader and less constraining than pair programming
 - A collaborative effort of any two team members: dev/dev, dev/PO, dev/tester, etc.
- ▶ Team members spend 20% to 80% of their time pairing
- ▶ Pairs should be spontaneous and purposefully rotate over time



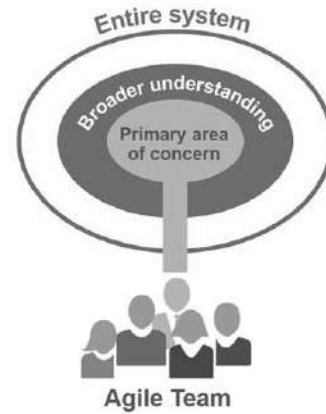
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Notes:

Collective ownership


- ▶ Addresses bottlenecks, increases velocity, and encourages shared contribution
- ▶ Fosters Feature orientation.
- ▶ Is supported by:
 - Design simplicity
 - Communities of practice
 - Pair work
 - Joint specification and design workshops
 - Frequent integration of the entire system
 - Standards
- ▶ Collective test ownership is even more important. It facilitates shared understanding of system behavior.



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Notes:



Activity: Facilitate the adoption of integration and testing

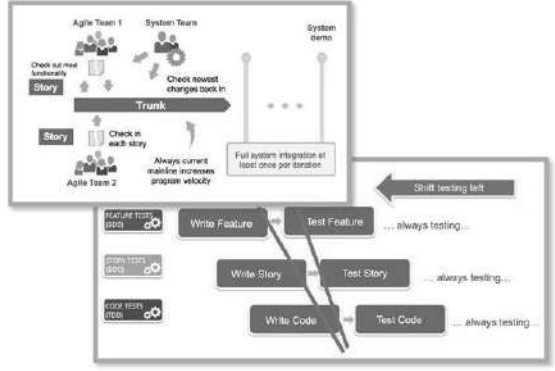
Prepare

7 min

Share

3 min

- ▶ **Step 1:** Identify current problems in your team's experience with integration and test automation.
- ▶ **Step 2:** Build a realistic plan for enhancing your team's integration and testing ability.
- ▶ **Step 3:** Discuss: How does this plan connect with the team's definition of done?



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Notes:

5.4 Foster engineering craftsmanship

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Notes:

Foster adoption of technical practices

A Scrum Master facilitates the adoption of technical practices.

- ▶ Helps the team mature in its definition of done
- ▶ Creates transparency and urgency around continuous system integration
- ▶ Encourages small, automated acceptance tests at the beginning and evolves from there
- ▶ Encourages team members to coach each other in TDD, BDD, refactoring
- ▶ Helps the team adopt a 'thinking backward' approach: What is the expected behavior of the functionality that we are about to code?
- ▶ Helps facilitate the power of human-readable acceptance tests
- ▶ Encourages pairing and peer review



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Notes:

Encourage learning

Scrum Masters create an environment for continuous learning.

Learning is not compulsory... neither is survival.

—W. Edwards Deming



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Notes:

Encourage learning: Inside-Outs

Team Inside-Outs	A team member prepares a short presentation or flip chart talk for their team.	Frequency: Once every 1 – 2 Iterations
		Duration: 30 – 60 minutes
		Example: <i>We will soon start using Hibernate for data persistence. John has experience and is willing to share his knowledge.</i>
Your role	Help kick-start the first 2 – 3 Inside-Outs and help participants prepare	
	Maintain the Inside-Out schedule	
	Invite shared resources (System Architect, User Experience, infrastructure, etc.) or people from other teams to discuss useful topics	

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Notes:

Encourage learning: Book and Coffee Breaks

Book and Coffee Breaks (BCBs)	A normal coffee break with 3 – 4 people discussing a book on a new technology, practice, or domain topic that the team is trying to master.	Frequency: 2 – 3 times per Iteration
		Duration: 15 – 30 minutes
		Example: <i>The team is about to build its first crawler and Andrew reads them some excerpts from Soumen Chakrabarti's book Mining the Web.</i>
Your role	Lead a few BCBs and acquaint people with the format	

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Notes:

Encourage Learning: Coding Dojo

Coding (and Testing) Dojo	A session where developers and/or automated test engineers gather to discuss programming and testing challenges. One or two people sit at the computer and project onto a screen. As they code, people comment out loud. After 5 – 8 minutes, people rotate.	Frequency: Once every 1 – 2 Iterations
		Duration: 60 – 90 minutes
Your role	Arrange facilities and equipment	
	Help brainstorm fun, challenging exercises (could be a spike, a script for retrieving data, or even code in one of the main modules)	
	Be sure to encourage variety and introduce different exercises	
	Similarly, testers will enjoy learning how to write test scripts	

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Notes:

Encourage Learning: Communities of Practice

Communities of Practice (CoPs)	Communities of practice are self-organizing groups that form to discuss new topics, challenges, and best practices.	Frequency: Once every 1 – 2 Iterations
		Duration: 30 – 60 minutes
		Format: Any of the formats previously discussed (Inside-Out, BCB, Dojo)
		<i>Example: An automated testing CoP gathers to attend Ivan's presentation on creating FIT tests for complex branching scenarios.</i>
Your role	Work with other Scrum Masters and the Release Train Engineer to create and maintain the CoPs	
	Unite people from different teams in the program around the same process objectives or activities (e.g. unit testing, automated acceptance testing, system design, infrastructure, deployment, etc.)	

Notes:

5.5 Facilitate collaboration with Architects, System Team, and Operations

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Notes:

System Team, Architects, Operations



System Architects - Provide architectural guidance to teams, collaborate on new technical research, address technical questions from team members



System Team - Assist the ART with frequent system integration and testing and development infrastructure support




Operations - Enable the Continuous Delivery Pipeline through infrastructure and process support

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Notes:

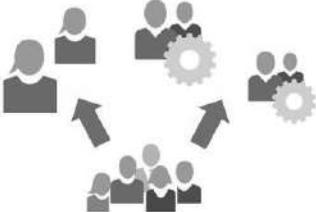


Discussion: Collaboration with special teams

Prepare
3 min

Share
2 min

- ▶ **Step 1:** Consider the following events:
 - PI Planning
 - Iteration Execution
 - System Demo
- ▶ **Step 2:** Determine what kind of collaboration with Architects, System Team, and Operations would be useful in your context
- ▶ **Step 3:** Be prepared to share with the class



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Notes:

Lesson review

In this lesson you:

- ▶ Built your Kanban board
- ▶ Measured and optimized flow
- ▶ Explored building quality in
- ▶ Discussed fostering engineering craftsmanship
- ▶ Facilitated collaboration with Architects, System Team, and Operations

Notes:

Lesson 6

Building High-Performing Teams

Learning Objectives:

- 6.1 Foster collaboration on the team
- 6.2 Facilitate cross-team collaboration
- 6.3 Build trust with stakeholders
- 6.4 Develop team skill sets
- 6.5 Build an improvement Roadmap



SAFe® Authorized Course Attending this course gives students access to the SAFe® Advanced Scrum Master exam and related preparation materials.

6.1 Foster collaboration on the team

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Notes:

Collaboration

Rather than moving in defined, highly structured stages, the real process is born out of the team members' interplay.

— Hirotaka Takeuchi and Ikujiro Nonaka

- ▶ Simply following Scrum (or Lean-Agile) processes doesn't make an Agile Team a team
- ▶ Poor collaboration often leads to:
 - Low velocity
 - Poor product quality
 - Low morale, low engagement, lack of commitment, poor working environment, and lack of trust
 - Missed commitments and poor results

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Notes:

Fostering collaboration

Fostering collaboration is one of the most important tasks of a Scrum Master.

Weak collaboration often exists:


- ▶ Between developers and testers (late testing, poor quality, low velocity)
- ▶ Among developers (technical debt, poor knowledge sharing, too much WIP)
- ▶ Between the PO and the rest of the team (unnecessary rework due to misunderstood acceptance criteria, low velocity)
- ▶ With other teams (uncontrolled dependencies, sense of false progress)



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Notes:




Discussion: Collaboration on your team

Prepare
3 min

Share
2 min

- ▶ **Step 1:** Consider your actual team environment:
 - What examples of collaboration would be helpful in your environment beyond basic Scrum events?
 - What problems would it solve?
- ▶ **Step 2:** Be prepared to share with the class



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Notes:

6.2 Facilitate cross-team collaboration

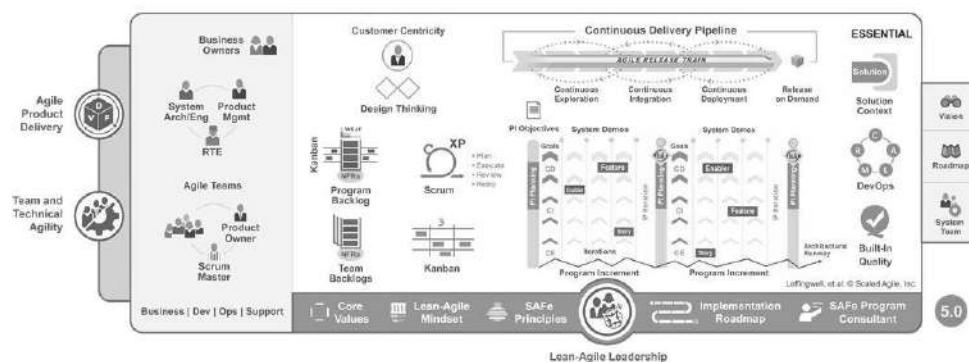
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Notes:

Collaboration across teams is key


Agile Release Trains are built with a goal in mind: to foster team alignment and collaboration.



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Notes:



Activity: Cross-Team Collaboration

Prepare
8 min

Share
5 min

- ▶ **Step 1:** Read the following scenario:
 - *PI Planning resulted in quite a few dependencies with other teams, some of which have to be fulfilled in the same Iteration. One dependency occurs in Iteration 2. As Iteration 2 approaches, the team feels increasingly uncomfortable about being able to accomplish this critical dependency, because another team has to provide their own part of the functionality first.*
- ▶ **Step 2:** As a team, brainstorm possible solutions to the problem.
- ▶ **Step 3:** Using a flip chart sheet or a whiteboard, capture at least two solutions. In each case, think about what would be some advantages or disadvantages.
- ▶ **Step 4:** Share with the other teams as you walk around the room.


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Notes:



Notes:



Discussion: Building trust

Prepare
5 min

Share
2 min

► **Step 1:** Consider the scenario:

- *Agile doesn't work without trust. However, you haven't been able to establish a relationship of trust with Product Management. They require frequent status reports about your team's current Stories. The relationship is clearly broken.*

► **Step 2:** Discuss:

- What specific activities in SAFe do you think would help you establish trust with these stakeholders?
- What adjustments (if any) would you make to leverage those activities to build maximum trust?

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Notes:

6.4 Develop team skill sets

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Notes:

Help team members develop new skills

Narrow specialization of skills on the team is not supportive of any fluctuations in flow.

- ▶ Consider moving from an *I*-shaped skill set model to a *T*, or even an *E*-shaped skill set
- ▶ ***T-shaped example:*** A Java developer can do a bit of DB development, a bit of configuration management, and has rudimentary knowledge in building web UI
- ▶ ***E-shaped example:*** A Python developer, who also knows Java very well, is deep into SQL and databases



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Notes:



Discussion: Developing skills

Prepare
3 min

Share
2 min

► **Step 1:** Discuss the following:

- What opportunities for building T-shaped skill sets would you consider?
- How would you achieve that?
- Would you take on building E-shaped skill sets or is that too much to accomplish?

► **Step 2:** Be prepared to share with the class.



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Notes:

6.5 Build an improvement Roadmap

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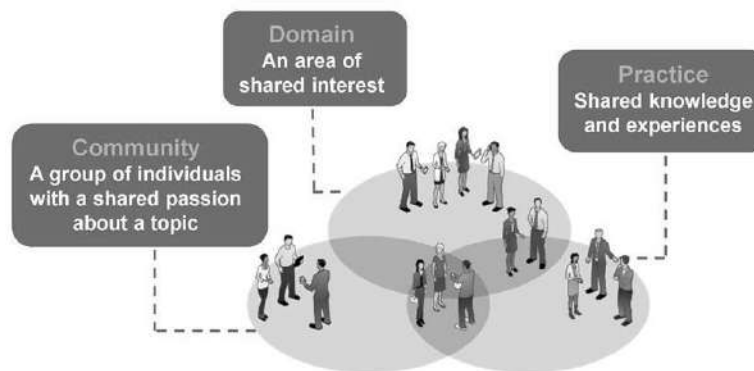
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Notes:

What are communities of practice?

Communities of practice are groups of people who share a common concern or a passion for something they do and learn how to do it better as they interact regularly.



— Étienne Wenger, *Communities of Practice: Learning, Meaning, and Identity*



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Notes:

Benefits of CoPs		
Benefits to the organization 	Short-term value Improves business outcomes <ul style="list-style-type: none"> • Arena for problem-solving • Quick answers to questions • Reduced time and costs • Improved quality of decisions • More perspectives on problems • Coordination/synergy across units 	Long-term value Develops organizational Capabilities <ul style="list-style-type: none"> • Be able to execute a strategic plan • Gain credibility with clients • Increase retention of talent • Exploit unplanned Capabilities • Enable competitive benchmarking • Leverage advances in technology • Harness the power of social networks
	Benefits to community members 	Improves experience of work <ul style="list-style-type: none"> • Help with challenges • Access to expertise • Improved contribution to the team • Increased confidence in approach • Fun of being with colleagues • More meaningful participation • Sense of belonging
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Notes:

6.5 Build an improvement Roadmap



Activity: Improvement Roadmap

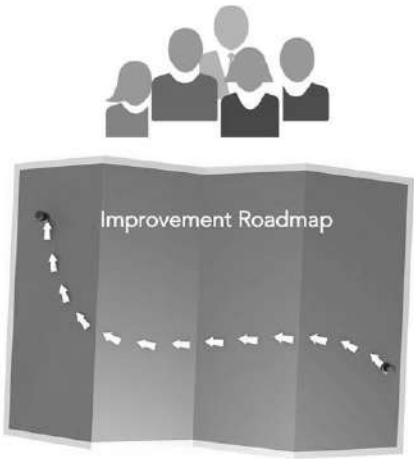
Prepare
7 min

Share
3 min

► **Step 1:** Build an improvement Roadmap for your team for the next PI

► **Step 2:** Share with the class:

- What new practices would you adopt and advance?
- How could Communities of Practice (CoP) help?
- How does your Roadmap relate to the team's definition of done?



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Notes:

Lesson review

In this lesson you:

- ▶ Fostered collaboration on the team
- ▶ Facilitated cross-team collaboration
- ▶ Discussed how to build trust with stakeholders
- ▶ Explored developing team skill sets
- ▶ Built an improvement Roadmap

Notes:

Lesson 7

Improving Program Performance

Learning Objectives:

- 7.1 Explore the Inspect and Adapt process
- 7.2 Apply a Problem-Solving Workshop



SAFe® Authorized Course Attending this course gives students access to the SAFe® Advanced Scrum Master exam and related preparation materials.

7.1 Explore the Inspect and Adapt process

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Notes:

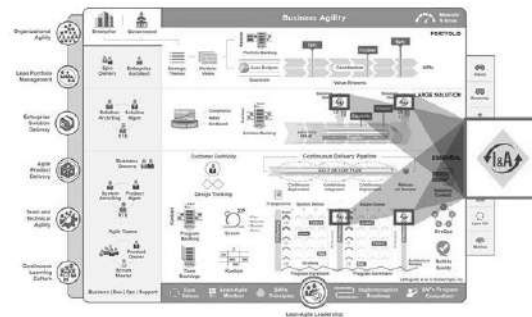
Inspect and Adapt event: Overview

Three parts of Inspect and Adapt:

1. The PI System Demo
2. Quantitative measurement
3. Problem-solving workshop

Timebox: 3 – 4 hours per PI

Attendees: Teams and stakeholders



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Notes:

PI System Demo

- ▶ At the end of the PI, teams demonstrate the current state of the Solution to the appropriate stakeholders.
- ▶ Often led by Product Management, POs, and the System Team
- ▶ Attended by Business Owners, program stakeholders, Product Management, RTE, Scrum Masters, and teams
- ▶ Suggested timebox: 45-60 minutes



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Notes:

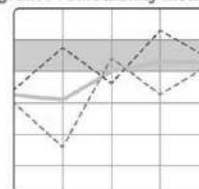
Team performance assessment

- ▶ All teams' PI Objectives were assigned a business value from 1 to 10.
- ▶ Review and rate your PI achievements:
 - How well did you do against your stated objectives, including timeliness, content, and quality?
 - Rate on a scale of 1 to 10, 10 being max total business value.
- ▶ Average these across all objectives and give yourself a program percent achievement score.
- ▶ Suggested timebox: 45 – 60 minutes

Team PI Performance Report

Business Value		
Objectives for PI 3	Plan	Actual
• Structure/locate and validate all features	8	8
• Build and demonstrate a proof of concept for system image	8	8
• Implement negative translation by tags, comments and profile	10	10
• Speed up indexing by 50%	10	10
• Index 1.2 billion more web pages	7	7
Uncommitted Objectives		
• Fully search by full name	7	6
• Improve query to 80% relevance	8	8
Total:	50	63
% Achievement:	90%	

Program Predictability Measure



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Notes:

Team PI performance report

- ▶ Planned total does not include uncommitted objectives
- ▶ Actual total includes uncommitted objectives
- ▶ Percent achievement equals actual total/planned total
- ▶ A team can achieve greater than 100% (as a result of uncommitted objectives achieved)
- ▶ Effort required for uncommitted objectives is included in the load (i.e., not extra work the team does on weekends)
- ▶ Individual team totals are rolled up into the program predictability report

Objectives for PI 3	Business Value	
	Plan	Actual
• Structured locations and validation of locations	7	7
• Build and demonstrate a proof of concept for context images	8	8
• Implement negative triangulation by: tags, companies and people	8	6
• Speed up indexing by 50%	10	5
• Index 1.2 billion more web pages	10	8
• Extract and build URL abstracts	7	7
Uncommitted Objectives		
• Fuzzy search by full name	7	0
• Improve tag quality to 80% relevance	4	4
Totals:	50	45
% Achievement:	90%	

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Notes:

Program performance metrics

- ▶ Summarize and discuss any other program Metrics that the team has agreed to collect
- ▶ Suggested timebox: 45 – 60 minutes

Functionality	PI 1	PI 2	PI 3
Program velocity			
Predictability measure			
# Features planned			
# Features accepted			
# Enablers planned			
# Enablers accepted			
# Stories planned			
# Stories accepted			
Quality			
Unit test coverage %			
Defects			
Total tests			
% automated			
# NFR tests			

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Notes:

7.2 Apply a Problem-Solving Workshop

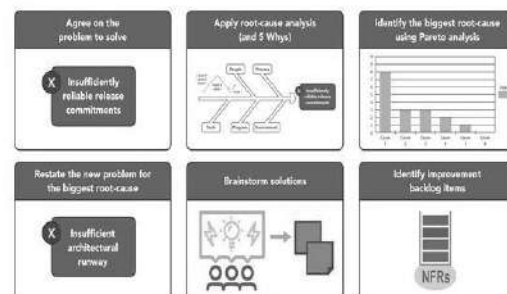
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Notes:

The problem-solving workshop

- ▶ Teams conduct a short retrospective
- ▶ Then systematically address the larger impediments that are limiting velocity

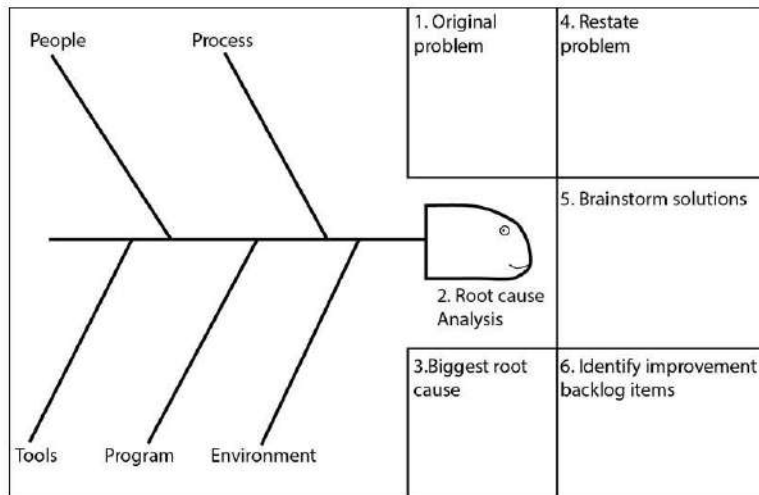


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Notes:

Build the problem-solving board



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Notes:

Agree on the problem to solve

- ▶ Clearly stating the problem is key to problem identification and correction
- ▶ You must define the undesirable problem or situation, so that everyone involved in the countermeasures understands
- ▶ A clearly defined problem focuses your investigation efforts and saves time. Honest effort at careful definition will avoid the “ready, fire, aim” approach that is so common in problem-solving
- ▶ A problem that is not well-defined may result in failure to reach the proper countermeasure



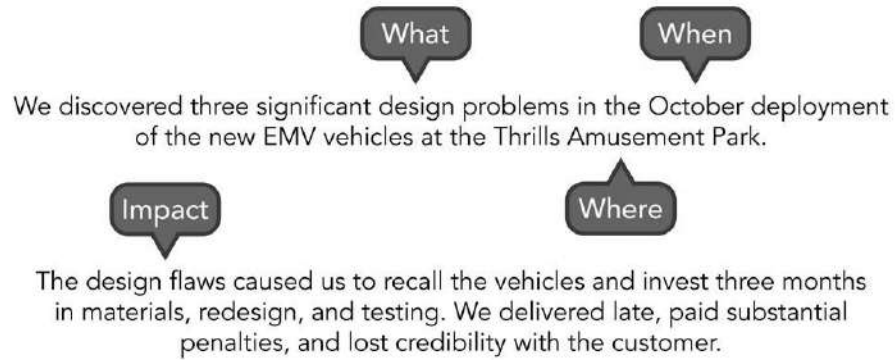
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Notes:


Anatomy of a well-defined problem

Think about the What, When, Where, Frequency, and any gaps



Concept contributed by Beth Miller


Notes:



Activity: Agree on the problem

Duration
10 min

- ▶ **Step 1:** Review the systemic impediments you identified in previous lessons
- ▶ **Step 2:** Pick one problem to work on at your table or in affinity groups
- ▶ **Step 3:** Agree on a clear problem statement
 - **Note:** Don't worry about a well-formed problem or impact statement.

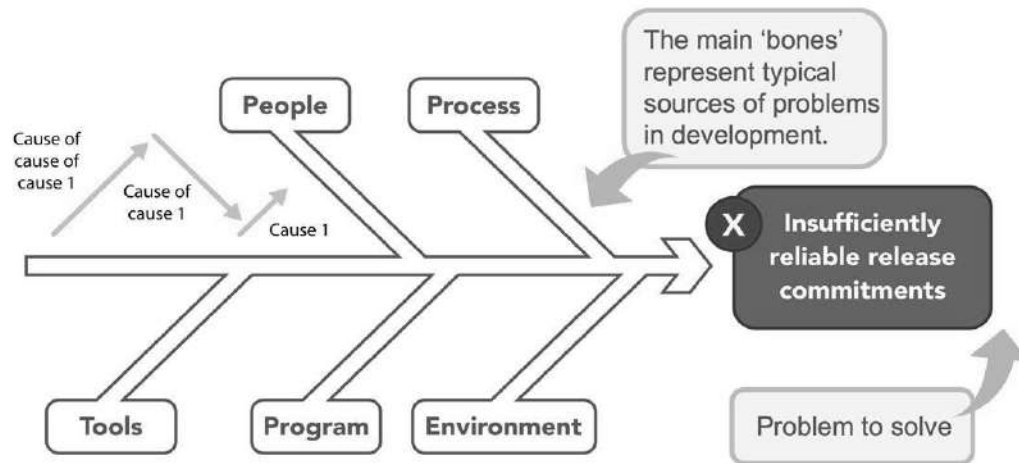


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Notes:

Root cause analysis (fishbone or Ishikawa) diagram



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Notes:

Finding the root cause: The 5 Whys

By repeating why five times, the nature of the problem, as well as its solution, becomes clear.
—Taiichi Ohno

- ▶ A proven problem-solving technique used to explore the cause-and-effect relationships underlying a particular problem
- ▶ The key is to avoid assumptions and logic traps
- ▶ Instead, trace the chain of causality in direct increments from the effect to a root cause

The Problem: My car will not start.

Why? - The battery is dead (first why).

Why? - The alternator is not functioning (second why).

Why? - The alternator belt has broken (third why).

Why? - The alternator belt was well beyond its useful service life (fourth why).


Why? - I have not been maintaining my car according to the recommended service schedule (fifth why, the root cause).



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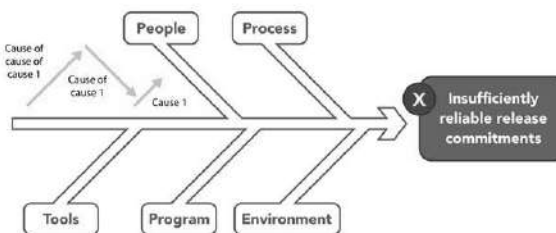
Notes:



Activity: Root cause analysis

Duration
15 min

- ▶ **Step 1:** Brainstorm potential causes of the problem and write them down under the Root Cause Analysis heading on the problem-solving board
- ▶ **Step 2:** For each cause identified, use the '5 Whys' technique to get to a potential root cause



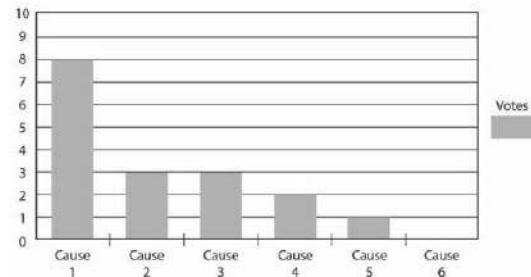
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Notes:

Pareto analysis: Identify the biggest root cause

- ▶ Pareto analysis, also known as the 80/20 rule, is a statistical decision technique used to narrow down the actions that produce the most significant overall effect
- ▶ It uses the principle that 20% of root causes can cause 80% of problems
- ▶ It's useful where many possible sources and actions are competing

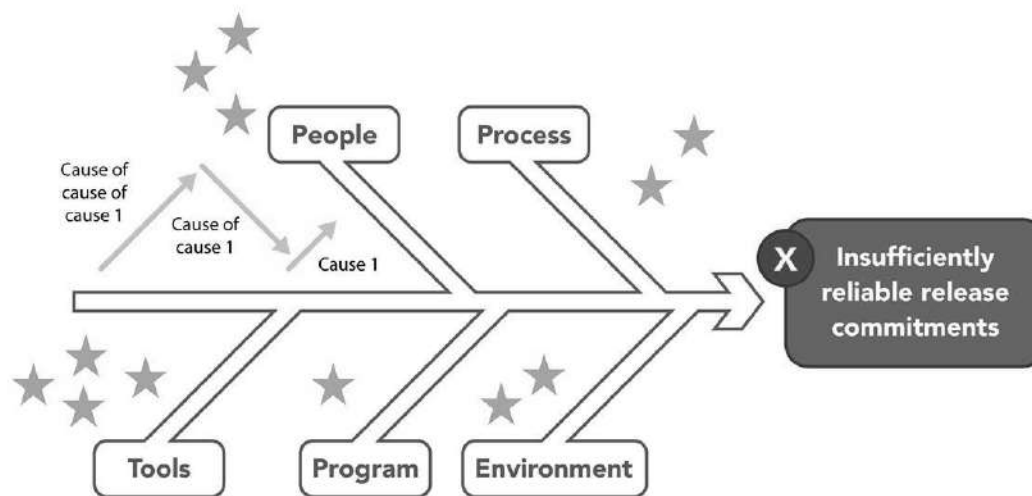


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Notes:


Vote on root causes



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Notes:



Activity: Restate the new problem

Duration
8 min

- ▶ **Step 1:** Dot vote to identify the biggest problem on your chart
- ▶ **Step 2:** Use Pareto analysis to visualize the biggest root cause
- ▶ **Step 3:** Succinctly restate the problem to address the identified root cause

Example:	We did not have the ability to measure or test the full electrical load on vehicles in real operating conditions.
Impact:	We had to upgrade the deployed power distribution system beyond what was specified, resulting in major cost and schedule overrun.

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Notes:

Brainstorm solutions


- ▶ Generate as many ideas as possible
- ▶ Do not allow criticism or debate
- ▶ Let the imagination soar
- ▶ Explore and combine idea



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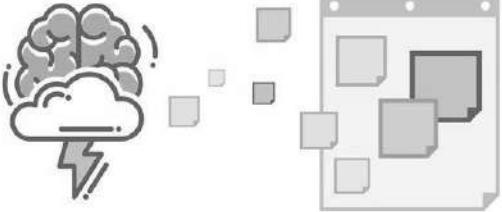
Notes:



Discussion: Brainstorm solutions

Duration
8 min

- ▶ **Step 1:** Individually brainstorm and write ideas on sticky notes
- ▶ **Step 2:** After all ideas are captured, discuss them as a team
- ▶ **Step 3:** Organize ideas into affinity groups



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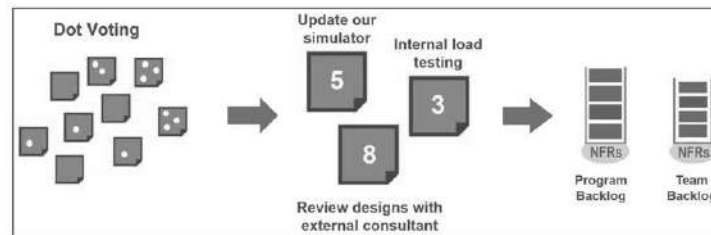
Notes:



Discussion: Identify improvement backlog items



- **Step 1:** Using dot voting, agree on the top three most viable solutions
- **Step 2:** Be ready to discuss with the group



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Notes:

Lesson review

In this lesson you:

- ▶ Explored how to improve program performance using an Inspect and Adapt event
- ▶ Experienced a problem-solving workshop

Notes:

Lesson 8

Becoming a Certified SAFe® Advanced Scrum Master

Learning Objectives:

8.1 Becoming a Certified SAFe Professional



SAFe® Authorized Course Attending this course gives students access to the SAFe® Advanced Scrum Master exam and related preparation materials.

Make the most of your learning



Access the SAFe Community Platform

Manage your member profile, continue your learning with toolkits and videos, and access communities of practice and the member directory



Prepare Yourself

Extend your SAFe knowledge and prepare for certification with your learning plan, course workbook, study materials, and practice test before your exam



Become a Certified SAFe Professional

Demonstrate your validated knowledge, skills, and mindset to participate in SAFe methods



Showcase Your SAFe Credentials

Use your digital badge to view global insights, track market labor data, and see where your skills are in demand

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Notes:



Video: Become a Certified SAFe Professional



Continue to build on the foundation of SAFe learning you began in class by studying and taking the certification exam.

Earning this certification demonstrates and establishes your new knowledge.

Certification details at:

<https://www.scaledagile.com/certification/about-safe-certification/>



<https://vimeo.com/307578726>

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Notes:



Video: Welcome to the SAFe Community Platform

Duration
5 min

Want to learn more about the next steps on your SAFe Journey?

Access the SAFe Community Platform and discover all the SAFe resources available for your use!



<https://vimeo.com/201877314>

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Notes:

Glossary



SAFe Glossary:

Visit the Scaled Agile Framework site (<http://v5.scaledagileframework.com/glossary>) to download glossaries translated into other languages