SAFe®
Product Owner/ Product Manager

Delivering Value through Effective Program Increment Execution

SAFe® Course – Attending this course gives learners access to the SAFe Product Owner/Product Manager exam and related preparation materials.

5.1.1

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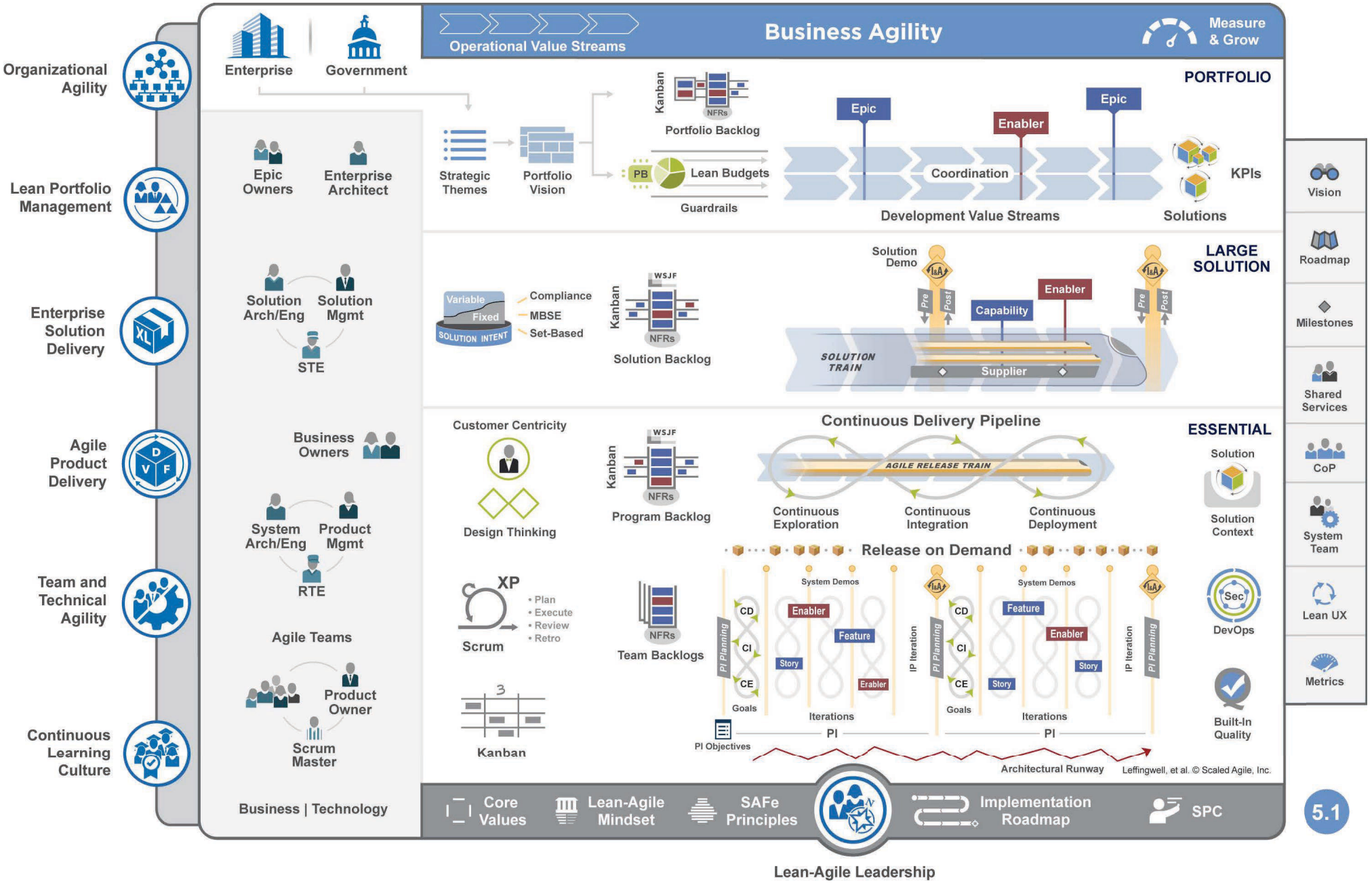

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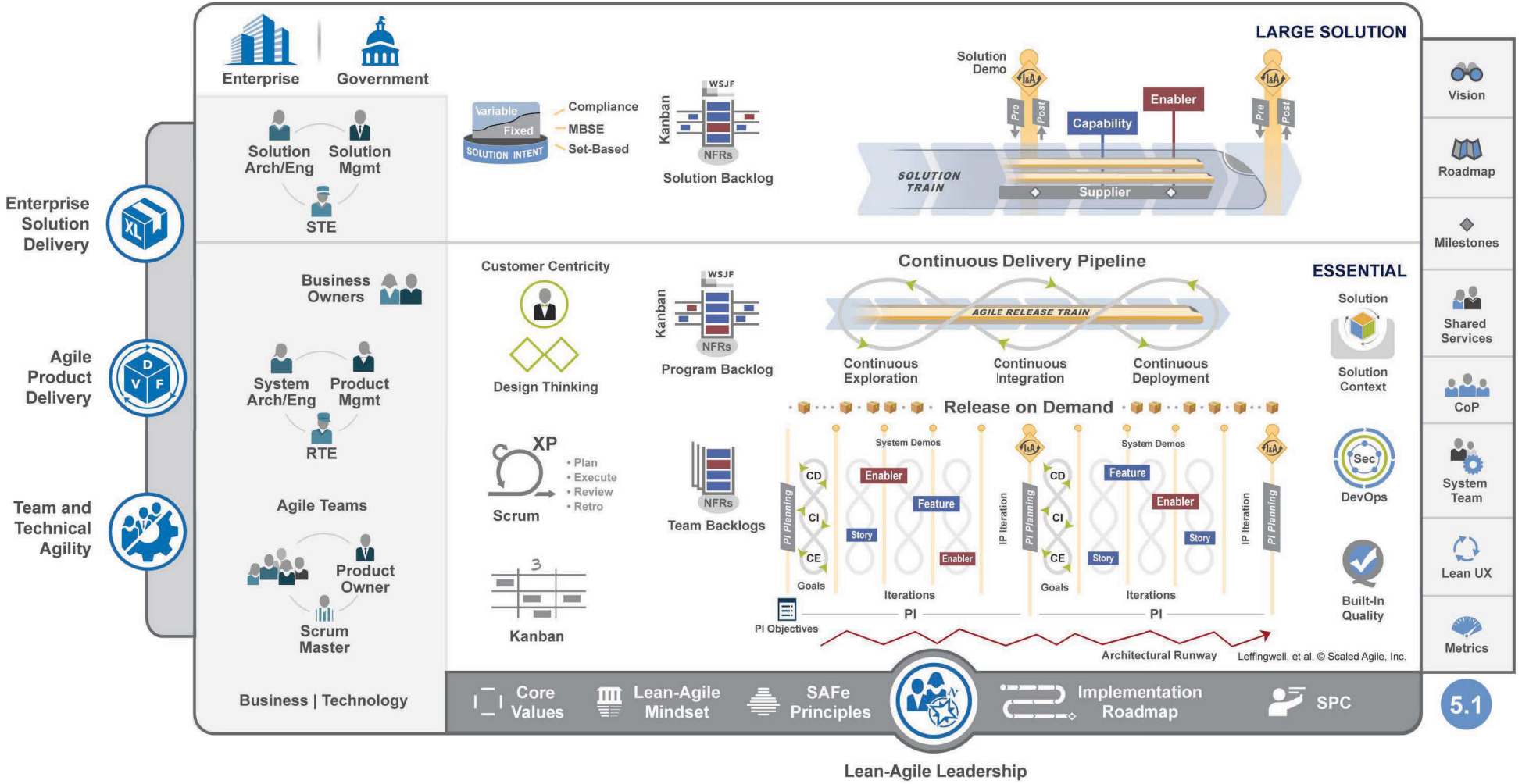

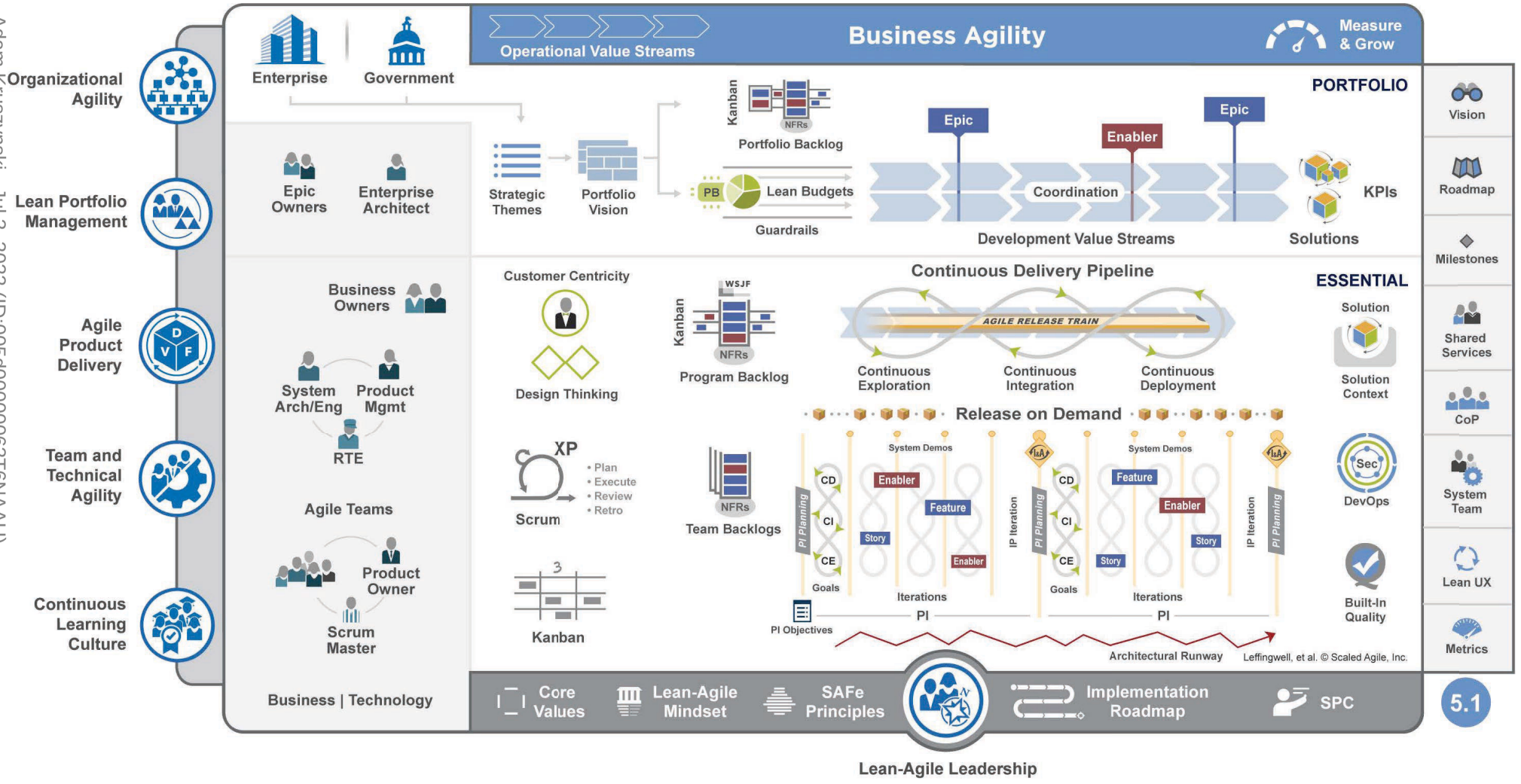

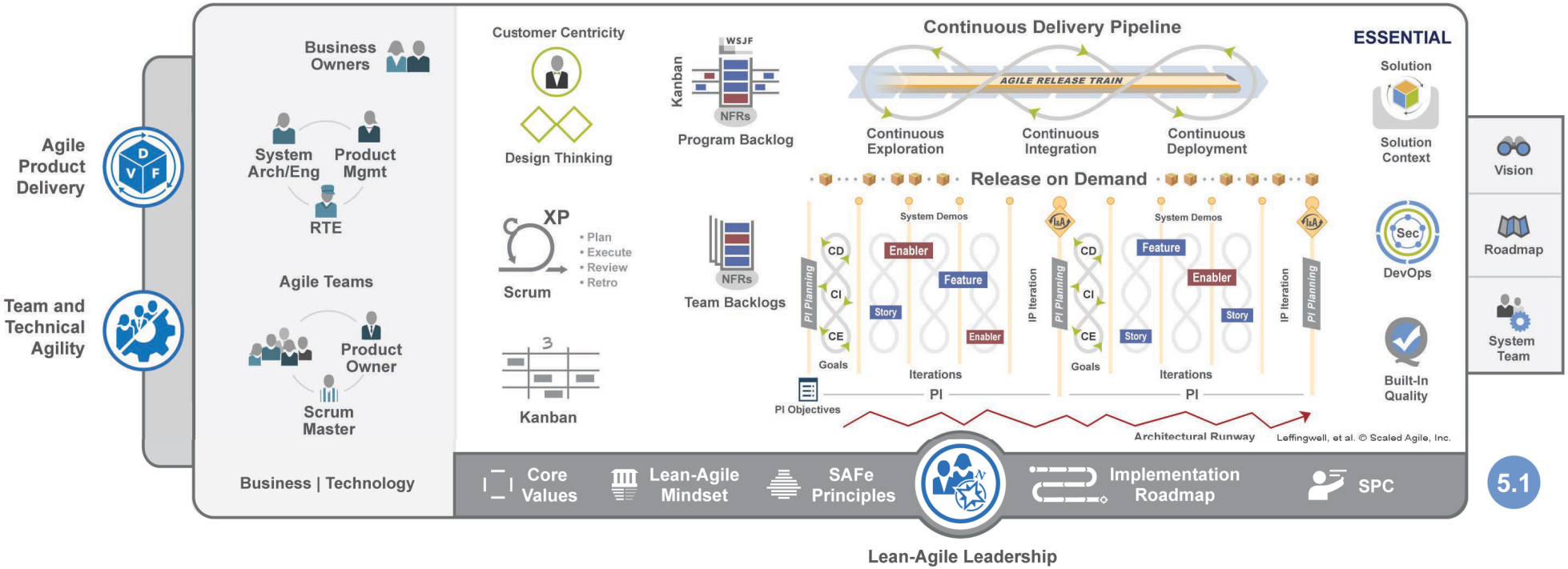

BUSINESS AGILITY

MEASURE & GROW

Enterprise Solution Delivery

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

Lean System and Solution Engineering

Coordinating Trains and Suppliers

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

Customer Centricity & Design Thinking

Develop on Cadence Release on Demand

DevOps and the Continuous Delivery Pipeline

Organizational Agility

- 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

Team And Technical Agility

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

Agile Teams

Teams of Agile Teams

Built-in Quality

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

Leading by Example

Mindset & Principles

Leading Change

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

Learning Organization

Innovation Culture

Relentless Improvement

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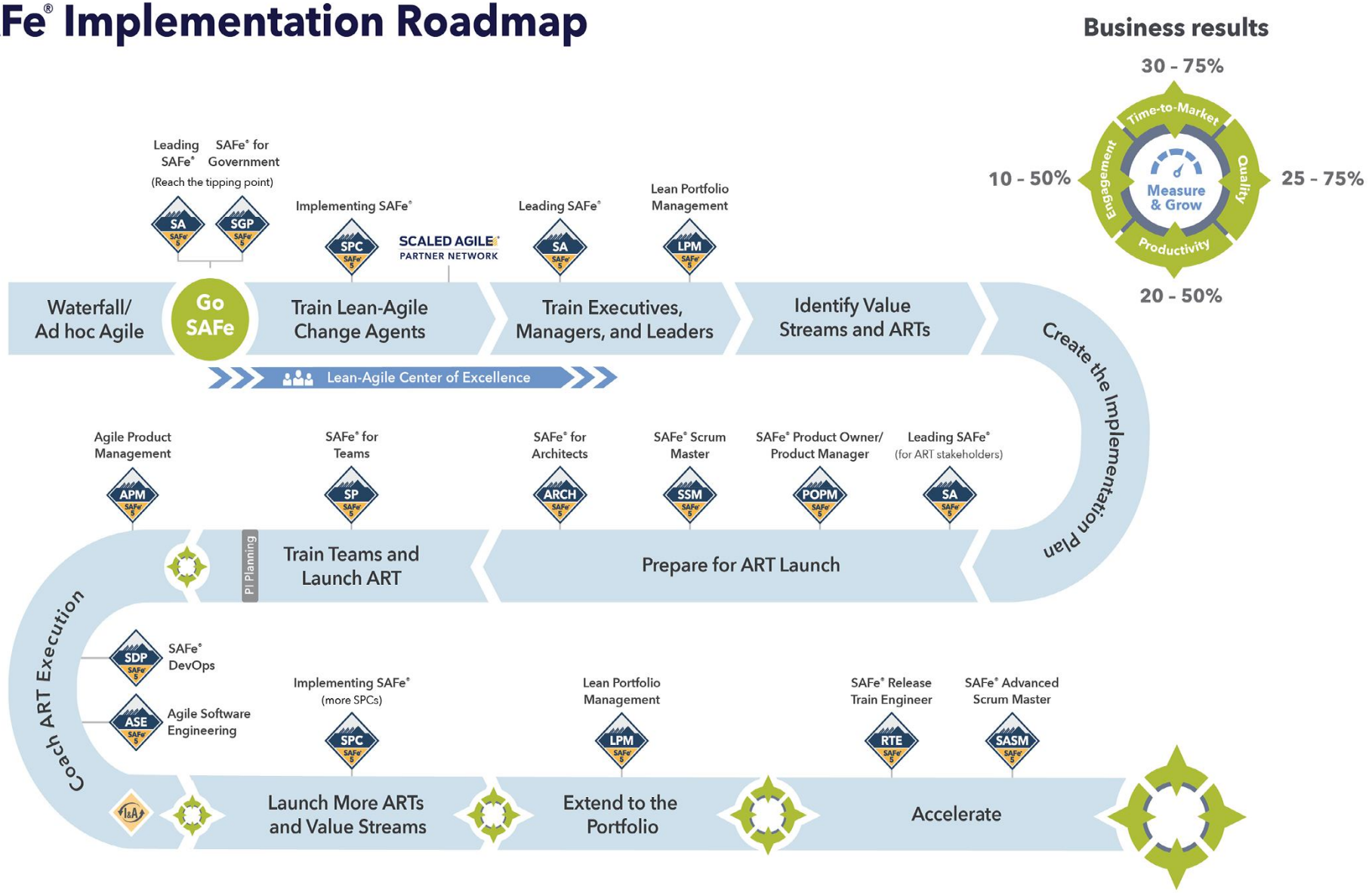
SAFe® Implementation Roadmap



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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 Management	Using Design Thinking to Create Valuable Products in the Lean Enterprise	*with SAFe® 5 Agile Product 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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5.1.1

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Logistics

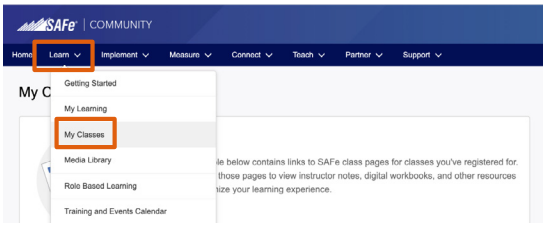
- Course meeting times
- Breaks
- Facilities
- Technology requirements
- Working agreements

Activity: Access the Class Page

Share

5 min

- **Step 1**: Navigate to the Class Page on the SAFe Community Platform
- **Step 2**: Select Learn, then My Classes, then Product Owner Product Management (5.1.1)
- **Step 3**: Click on the link to Download the Product Owner Product Management Digital (5.1.1) workbook (PDF)



SAFe® | COMMUNITY

Visit the Agile Product Management Class Page to download the workbook

https://bit.ly/Community-MyClasses

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Course outline

- Lesson 1: Exploring the Product Owner/Product Manager (POPM) Roles and Responsibilities
- Lesson 2: Preparing for PI Planning
- Lesson 3: Leading PI Planning
- Lesson 4: Executing Iterations
- Lesson 5: Executing the PI
- Lesson 6: Practicing SAFe

1-4

Lesson 1

Exploring the Product Owner/Product Manager (POPM) Roles and Responsibilities

SAFe® Course - Attending this course gives learners access to the SAFe Product Owner/Product Manager exam and related preparation materials.

POPM SAFe 5

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Lesson Topics

1.1 SAFe for Lean Enterprises

1.2 Value Streams

1.3 The Lean-Agile Mindset

1.4 Responsibilities of Product Owners and Product Managers

1-6

Learning objectives

At the end of this lesson, you should be able to:

- Describe SAFe for Lean Enterprises
- Explain Value Streams
- Describe the Lean-Agile Mindset for decision-making
- Describe responsibilities of Product Owners and Product Management

Video: Introduction to Terrific Transport Corporation

Duration 5 min

Throughout this course, you will participate in activities that ask you to play the role of a Product Owner or Product Manager at the Terrific Transport Corporation (TTC).

Please watch this company video. Anthea Bowen, CEO of TTC, provides the history and future direction of the company.

Click to here to play video

bit.ly/TTCwelcome

1.1 SAFe for Lean Enterprises

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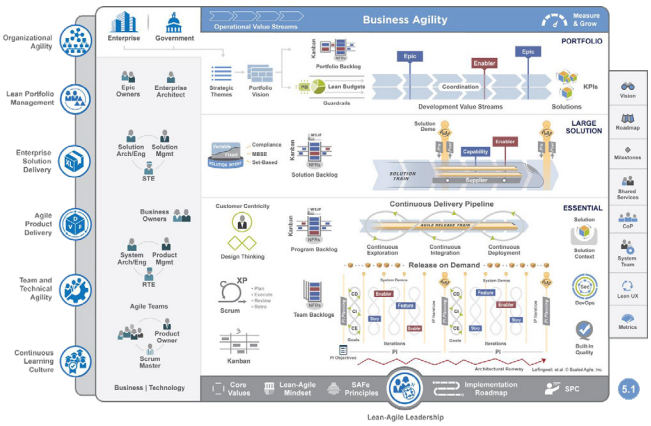
SAFe® 5 for Lean Enterprises is a knowledge base of proven, integrated principles, practices, and competencies for achieving Business Agility by implementing Lean, Agile, and DevOps at scale.



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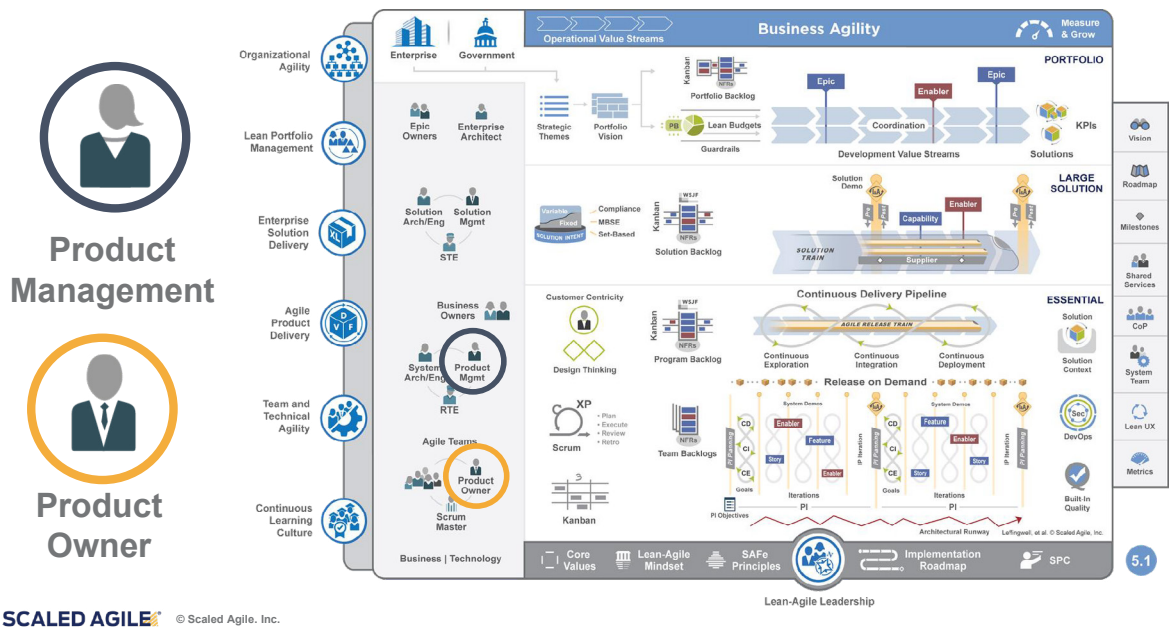
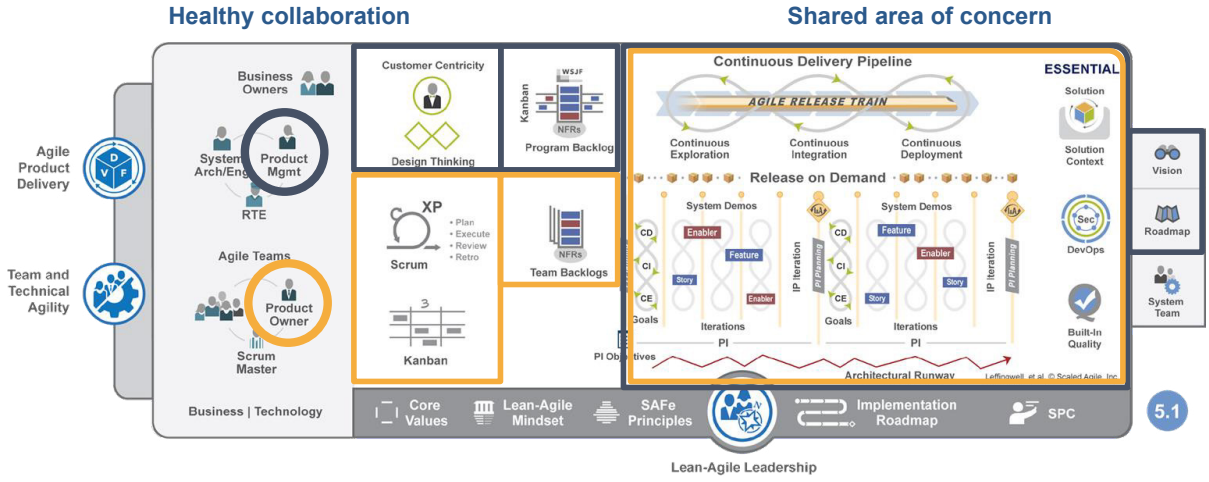
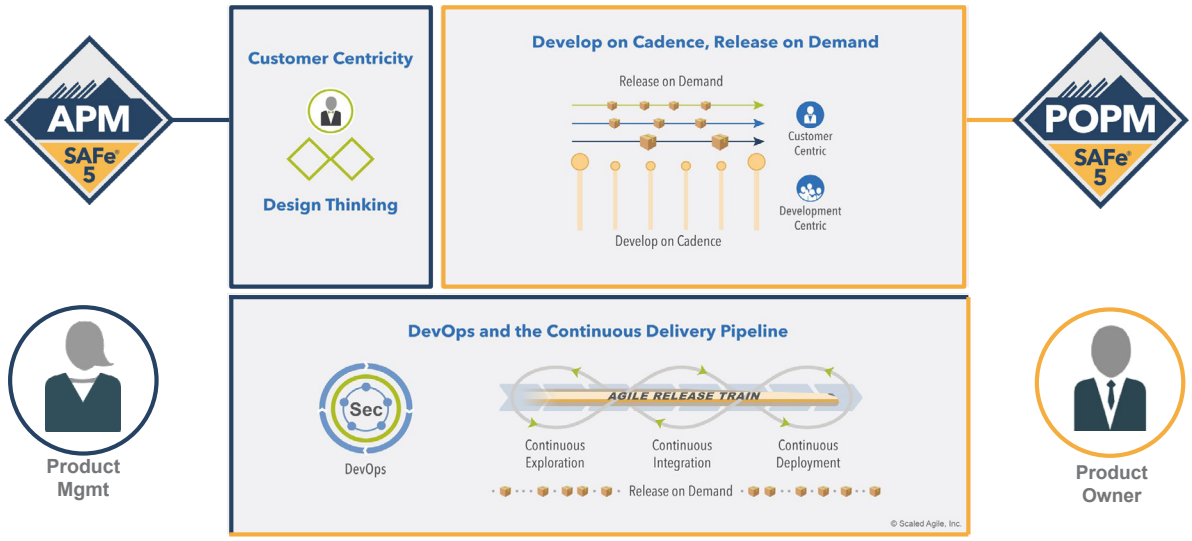
Product Owner and Product Management in SAFe



Product Management and Product Owner focus

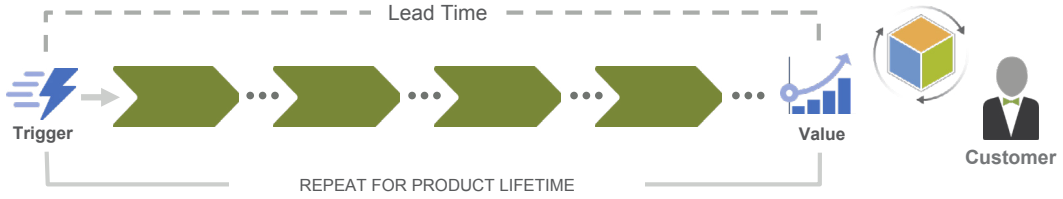


This course focuses primarily on execution



1.2 Value Streams

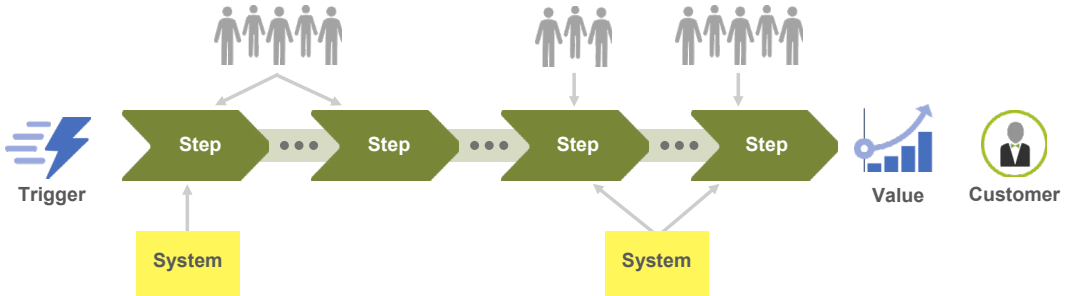
What is a Value Stream?



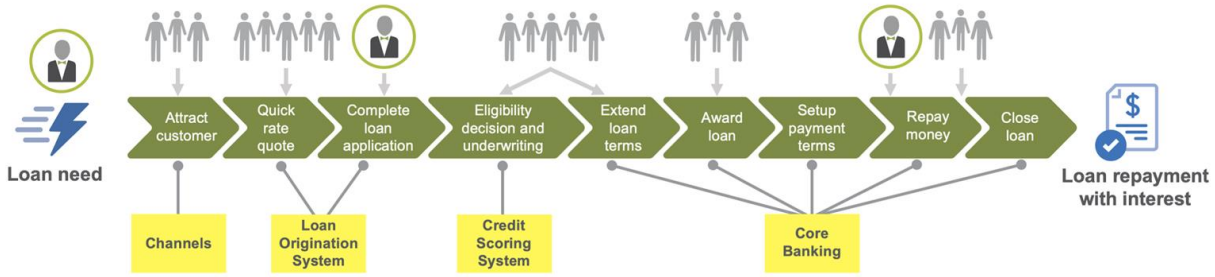
- Represents the series of steps an organization undertakes to deliver a product or service to a Customer
- Persists for as long as Customers continue to derive value
- Contains the systems, the people who do the work, and the flow of information and materials

Operational value streams

- The sequence of activities needed to deliver a product or service to a Customer
- Examples: manufacturing a product, fulfilling an e-commerce order, admitting and treating a patient, providing a loan, or delivering a professional service

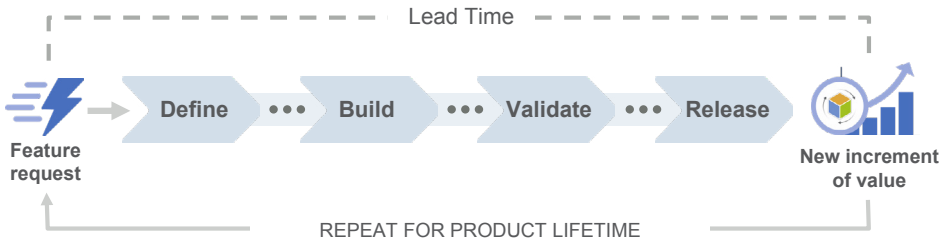


Consumer loan operational value stream

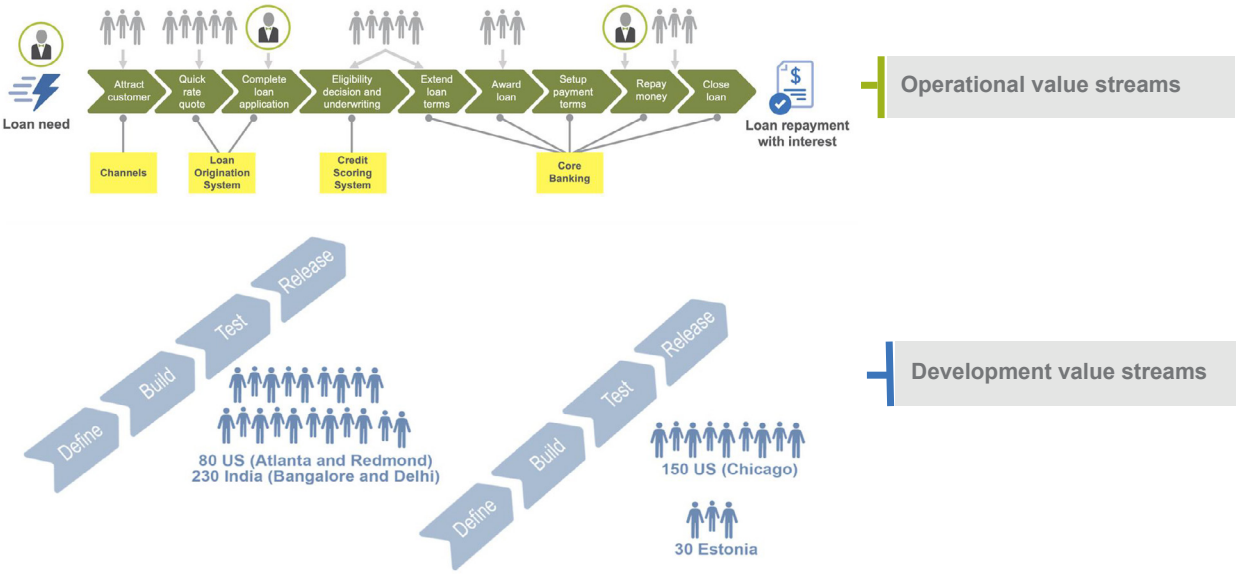


Development value streams

- The sequence of activities needed to convert a business hypothesis into a technology-enabled Solution that delivers Customer value
- Examples: designing and developing a medical device, developing and deploying a CRM system, and building an eCommerce web site

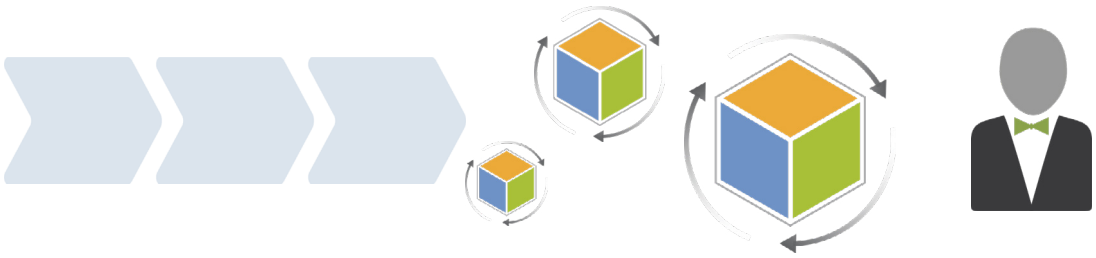


Development value streams support operational value streams



What is a Solution?

- A Solution is a product, service, or system delivered to the Customer, whether internal or external, to the Enterprise.
- Each development value stream produces one or more Solutions that enable the operational value stream.



Operational value streams for TTC

Truck Program	Design, manufacture, and sell energy-efficient, long-haul freightliners
Van Program	Design, manufacture, and sell energy-efficient, local courier vans
Autonomous Vehicle Program	Design, manufacture, and operate autonomous vehicles on select military bases
Autonomous Delivery Program	Design, manufacture, and operate autonomous vehicles for commercial delivery on public streets

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1.3 The Lean-Agile Mindset

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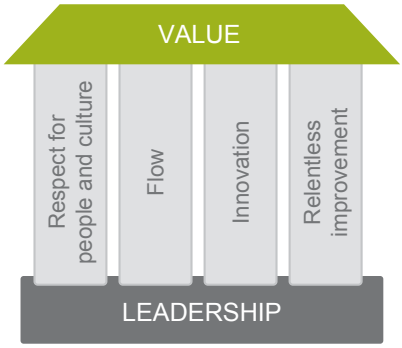
Embrace the Lean-Agile Mindset

House of Lean



Value in the shortest sustainable lead time

Agile Manifesto

We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

Individuals and interactions over processes and tools

Working software over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

1-23

The Agile Manifesto Principles

1. Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
2. Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.
3. Deliver working software frequently, from a couple of weeks to a couple of months, with a preference for the shorter timescale.
4. Business people and developers must work together daily throughout the project.
5. Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

1-24

The Agile Manifesto Principles

7. Working software is the primary measure of progress.
8. Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
9. Continuous attention to technical excellence and good design enhances agility.
10. Simplicity—the art of maximizing the amount of work not done—is *essential.*
11. The best architectures, requirements, and designs emerge from self-organizing teams.
12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

SAFe 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

Discussion: Lean-Agile Principles Mindset

Duration 10 min

Discuss how the SAFe Lean-Agile Principles impact your decision-making as a Product Owner or Product Manager.

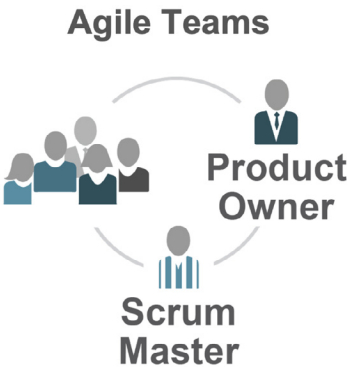
1-27

1.4 Responsibilities of Product Owners and Product Managers

1-28

What is an Agile Team?

- Is a cross-functional, self-organizing team of 5 to 11 people that define, build, test, and deliver Solution functionality
- Uses Scrum and Kanban for team Agility
- Applies Built-in Quality practices for Technical Agility
- Delivers value every Iteration
- Functions as the basic building block of the SAFe Enterprise



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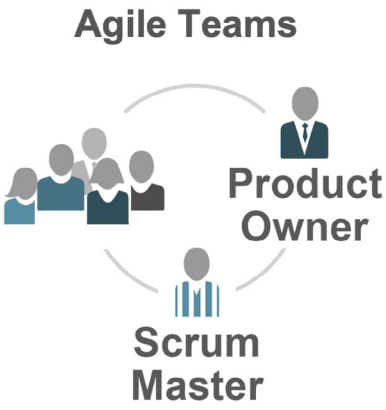
General responsibilities of the the Agile Team

- Create and refine Stories and acceptance criteria
- Define, build, test, and deliver Stories
- Develop and commit to team PI Objectives and Iteration plans



1-30

Agile Teams have two speciality roles

Scrum Master

- Coaches the Agile Team in self-management
- Helps the team focus on creating increments of value each iteration
- Facilitates the removal of impediments to the team's progress
- Ensures that all team events take place, are productive and kept within the timebox

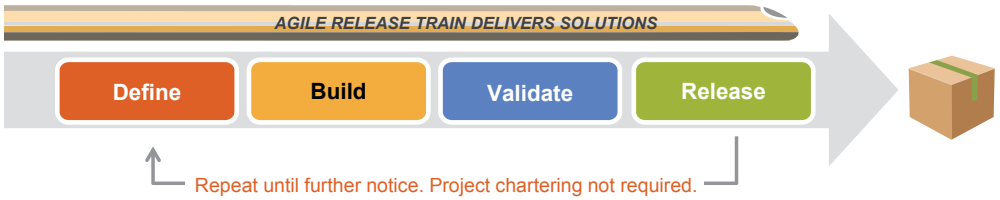
Product Owner

- Contributes to the Vision and Roadmap
- Acts as the Customer for team questions
- Creates, clearly communicates and accepts Stories
- Prioritizes the Team Backlog

1-31

What is an Agile Release Train (ART)?

- Consists of a virtual organization of 5 to 12 teams (50 to 125 individuals)
- Has all the capabilities—software, hardware, firmware, and other assets—needed to define, implement, test, and deploy new system functionality
- Operates with the goal of achieving continuous flow of value
- Synchronizes on common cadence (PI)
- Aligns to a common mission through the Program Backlog



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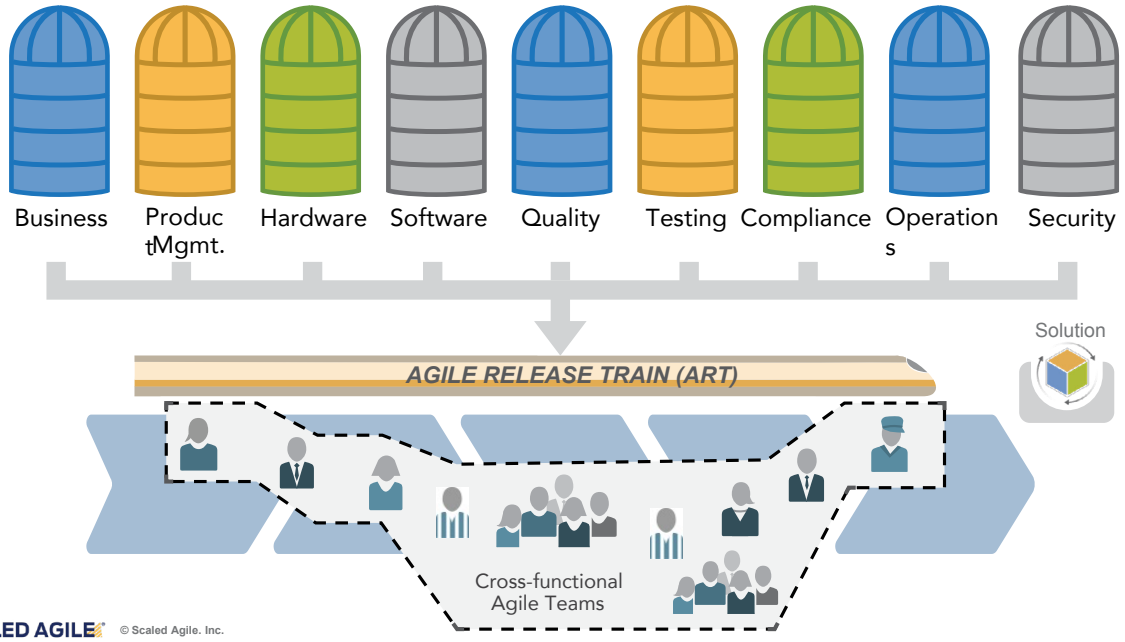
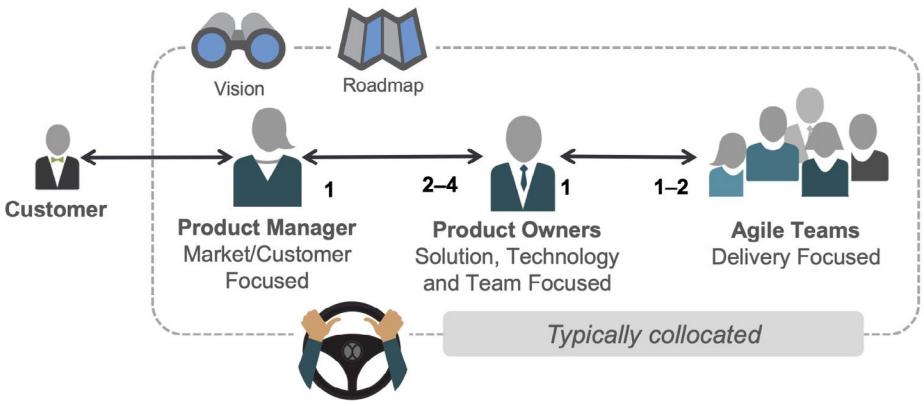
An ART is fully cross-functional



Product Managers and Product Owners collaboratively lead the train

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



Areas of focus for Product Manager, Product Owner, and Agile Team

Product Manager *Drives the PI and product*	**Product Owner** *Drives the Iteration*	**Agile Team** *Drives program execution*
Owns Program Backlog	Owns Team Backlog(s)	Builds Quality-In, evolves Agile architecture
Defines Features, PIs and Releases	Defines Iterations and Stories	Owns estimates
Owns Vision, Roadmap, pricing, licensing, ROI	Contributes to Vision, Roadmap, ROI	Evolves the Continuous Delivery Pipeline
Collaborates on Enablers	Accepts Iteration increments	
Build the right thing…		*… Build the right way*

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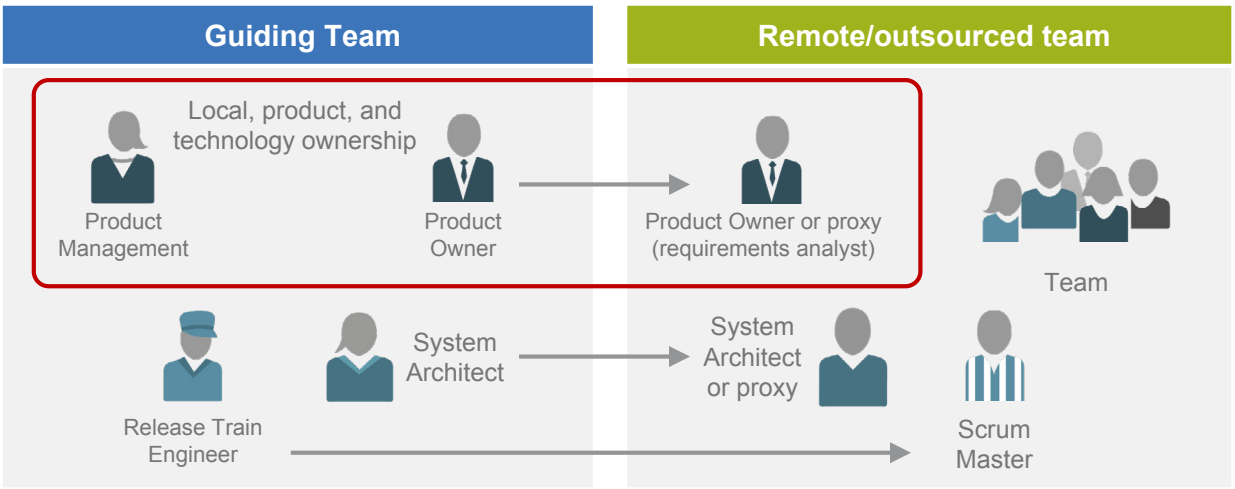
Product Owners, Product Managers, and distributed teams

Product Owners and Product Managers might not be collocated, which can create additional responsibilities.



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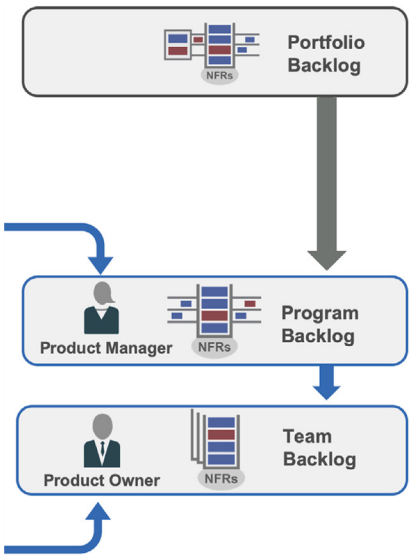
1-36

PO and PM governance: Content authority

Product Manager – Program Backlog
Has Program Backlog content authority. Works with the System Architect and Team to prioritize Enablers.
Has content authority for Vision and Roadmap.
Helps drive PI Objectives.
Establishes Features and acceptance criteria.

Product Owner – Team Backlog
Has Team Backlog content authority. Works with the System Architect to prioritize Enablers.
Drives Iteration Goals and content via prioritized Stories.
Establishes Story acceptance criteria.
Has authority for accepting Stories and Team increments.
Helps drive PI Objectives at the Team Level.



1-37

Collaboration with other ART roles

ART Roles		
	**Release Train Engineer (RTE)**	Acts as the chief Scrum Master for the train
	**System Architect-Engineering**	Provides architectural guidance and technical enablement to the teams on the train
	**System Team**	Provides processes and tools to integrate, and evaluates assets early and often
	**Business Owners**	Serve as the key stakeholders on the train

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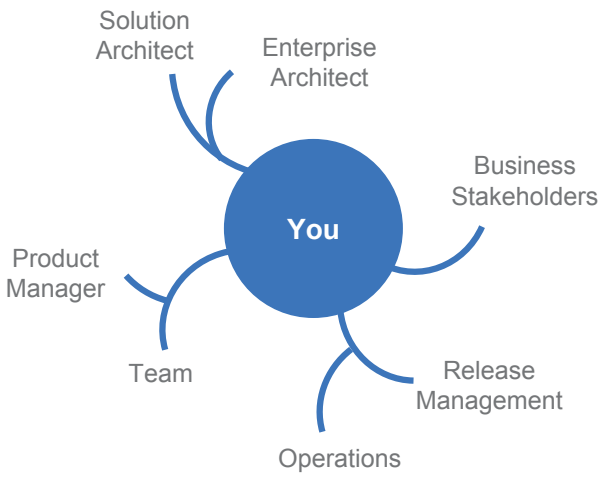
Activity: Key stakeholders and collaborators

Prepare 5 min | Share 5 min

- **Step 1:** Working individually, write your name in the middle of a circle. Write the names of people you consider stakeholders and collaborators.
- **Step 2:** Draw lines to capture relationships.



Lesson review

In this lesson, you:

- Explored SAFe for Lean Enterprises
- Reviewed Value Streams
- Discovered how the Lean-Agile Mindset impacts how a Product Owner or Product Manager makes decisions
- Reviewed responsibilities of Product Owners and Product Management

Action Plan: Exploring the PO/PM roles and responsibilities

Duration 5 min

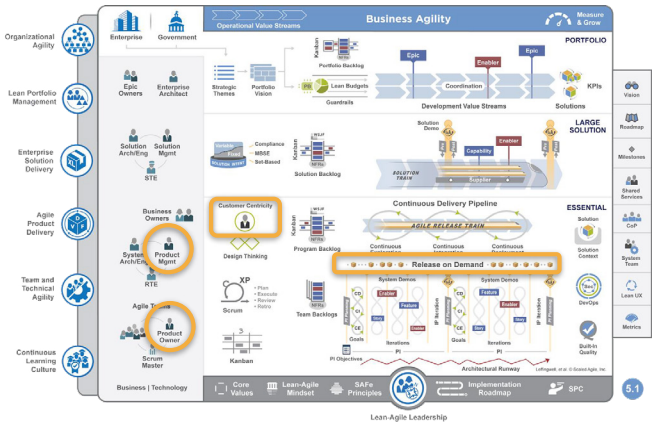
On the Action Plan page in your workbook, answer the following questions:

- What are some potential issues that might make it difficult to shift your approach, your team, and your organization to establish or foster the roles of Product Owner and Product Manager in SAFe?
- As you shift to a Lean-Agile mindset in your practices, and as you help others in your organization think and act in more Agile ways, what are some things you plan to do differently?
- Is your organization organized around value? Describe how your organization is organized around value. Describe how your organization might improve organizing around value.

Articles used in this lesson

Read these Framework articles to learn more about topics covered in this lesson

- Product Management https://www.scaledagileframework.com/product-management/
- Product Owner https://www.scaledagileframework.com/product-owner/
- Release on Demand https://www.scaledagileframework.com/release-on-demand/
- Customer Centricity https://www.scaledagileframework.com/customer-centricity/



Continue your SAFe journey with the following resources

Read the Blog Post, "What's a Product Owner to do?" to find out more about being a Product Owner. https://bit.ly/Bog-ProductOwner	**Listen to the following 16 minute Podcast to learn about Lean-Agile UX, the Roles of the PO/PM, servant leadership and more.** https://bit.ly/Podcast-RoleofPOPM
Watch the 4 minute Video, "The Lean-Agile Mindset" to learn more about what makes the Lean-Agile mindset unique. https://bit.ly/Video-LeanAgileMindset	**Go to the SAFe Agile Product Managers group to connect with other Product Managers and ask questions.** https://bit.ly/Community-ProductManagerGroup

1-43

What are some potential issues that might make it difficult to shift your approach, your team, and your organization to establish or foster the roles of Product Owner and Product Manager in SAFe?

As you shift to a Lean-Agile mindset in your practices, and as you help others in your organization think and act in more Agile ways, what are some things you plan to do differently?

Is your organization organized around value? Describe how your organization is organized around value. Describe how your organization might improve organizing around value.

Lesson 1 notes

Enter your notes below. If using a digital workbook, save your PDF often so you don't lose any of your notes.

Lesson 2

Preparing for PI Planning

SAFe® Course - Attending this course gives learners access to the SAFe Product Owner/Product Manager exam and related preparation materials.

POPM SAFe 5

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Lesson Topics

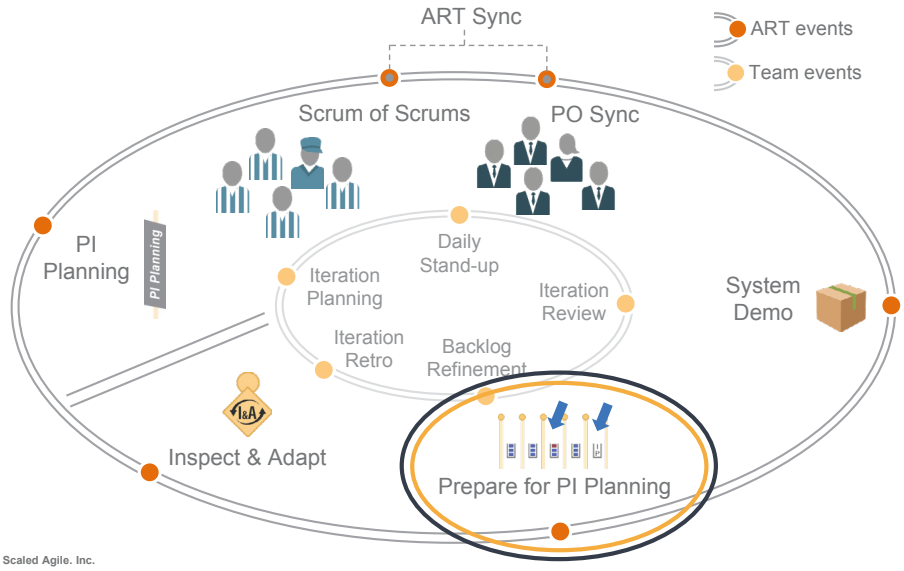
Learning objectives

At the end of this lesson, you should be able to:

- Describe PI Planning
- Describe the Product/Solution Vision
- Identify how to forecast work through Roadmaps
- Create beneficial Features
- Identify how to manage the Program Backlog and Kanban

Preparing for PI Planning

Supported by Product Owners, Product Managers take the lead in preparing for PI Planning

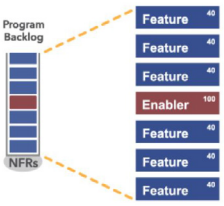


2.1 PI Planning

Product Owners and Product Managers are essential to PI execution

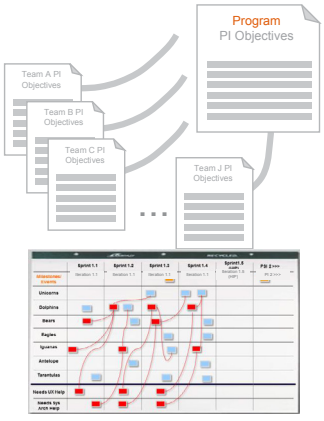
PI Planning preparation → **PI Planning** → **PI Planning outputs**

Create/update Vision and Roadmaps



Socialize the Top 10 Features to set expectations for the PI Planning event

Product Managers negotiate scope and contribute to business value scores



Team and Program PI Objectives and Program Board

What is a Program Increment (PI)?

- A timebox during which an Agile Release Train (ART) delivers incremental value in the form of working, tested software and systems.
- Typically, 8-12 weeks that consists of development iterations and an Innovation and Planning (IP) iteration.
- A timebox for planning, building, and validating a full system increment, demonstration value, and receiving fast feedback.

2-7

What is PI Planning?

A cadence-based event that serves as the heartbeat of the ART, aligning all teams on the ART to a shared mission and Vision.

- For every PI:
  - Two days for in-person
  - Three to four days for virtual
- Everyone plans together
- 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

2-8

Video: The Power of PI Planning

Duration 5 min

bit.ly/PowerofPIPlanning

The benefits of PI Planning

- Establishes personal communication across all team members and stakeholders
- Aligns development to business goals with the business context, Vision, and Team/Program PI Objectives
- Identifies dependencies and fostering cross-team and cross-ART collaboration
- Provides the opportunity for just the right amount of architecture and Lean User Experience (UX) guidance
- Matches demand to capacity and eliminates excess work in process (WIP)
- Enables fast decision making

Two-day PI Planning agenda

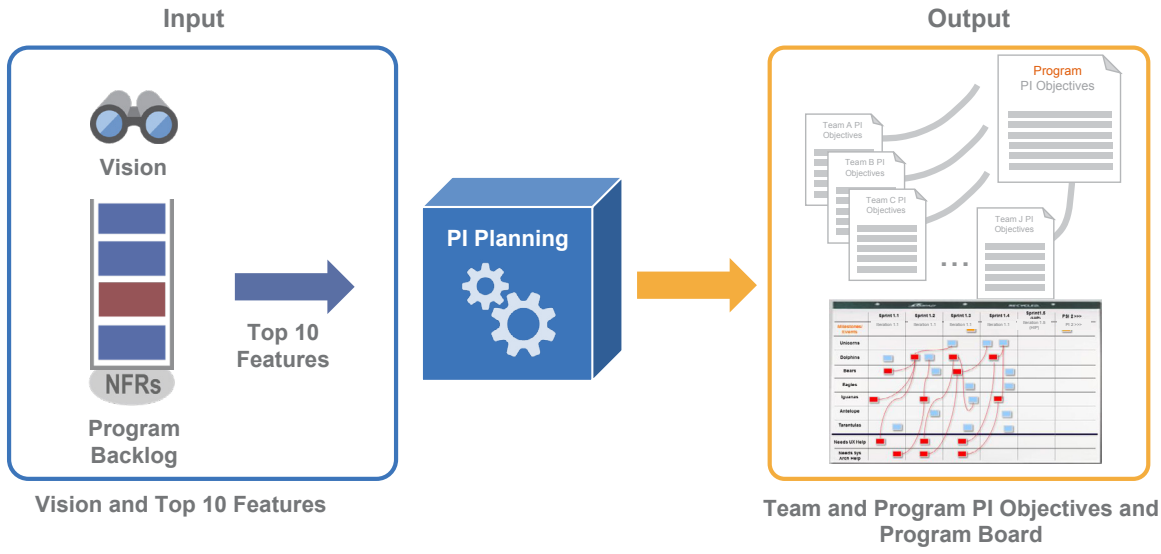
Day 1 Agenda

Business context	8:00–9:00
Product/Solution Vision	9:00–10:30
Architecture Vision and development practices	10:30–11:30
Planning context and lunch	11:30–1:00
Team breakouts	1:00–4:00
Draft plan review	4:00–5:00
Management review and problem solving	5:00–6:00

Day 2 Agenda

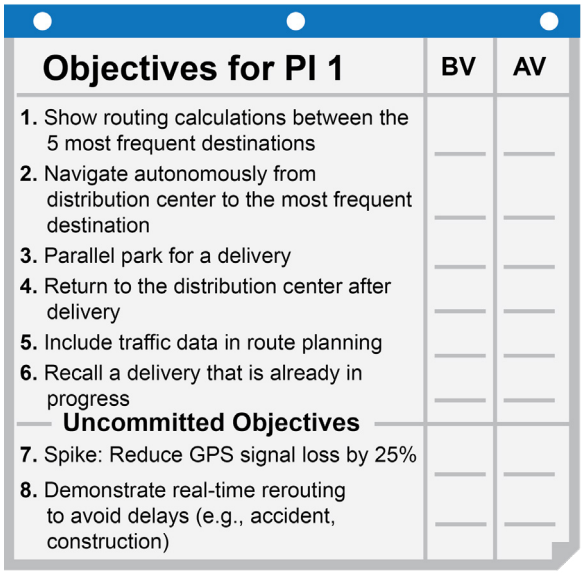
Planning adjustments	8:00–9:00
Team breakouts	9:00–11:00
Final plan review and lunch	11:00 –1:00
Program risks	1:00–2:00
PI confidence vote	2:00–2:15
Plan rework if necessary	2:15–???
Planning retrospective and moving forward	After commitment

The PI Planning process



Create alignment with PI Objectives

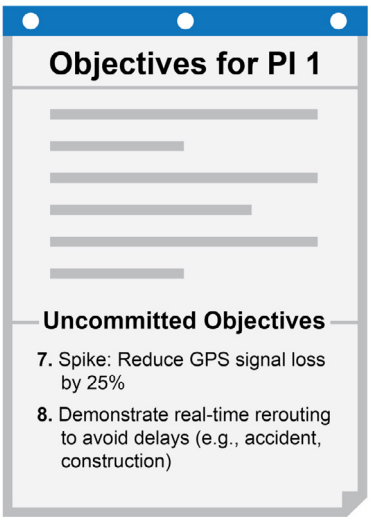
- Objectives are business summaries of what each team intends to deliver in the upcoming PI.
- Objectives often directly relate to intended Features in the backlog.
- Other examples of objectives:
  - Aggregation of a set of Features
  - A Milestone like a trade show
  - An Enabler Feature supporting the implementation
  - A major refactoring



Maintain predictability with uncommitted objectives

Uncommitted objectives help improve the predictability of delivering business value.

- Uncommitted objectives are planned and aren't extra things teams do "just in case you have time"
- Uncommitted objectives are not included in the commitment, thereby making the commitment more reliable
- If a team has low confidence in meeting a PI Objective, encourage the team to move the objective to uncommitted
- If an item has many unknowns, consider moving the item to uncommitted and put in early spikes
- Uncommitted objectives count when calculating load



2.2 The Product/Solution Vision

What is a Product/Solution Vision?

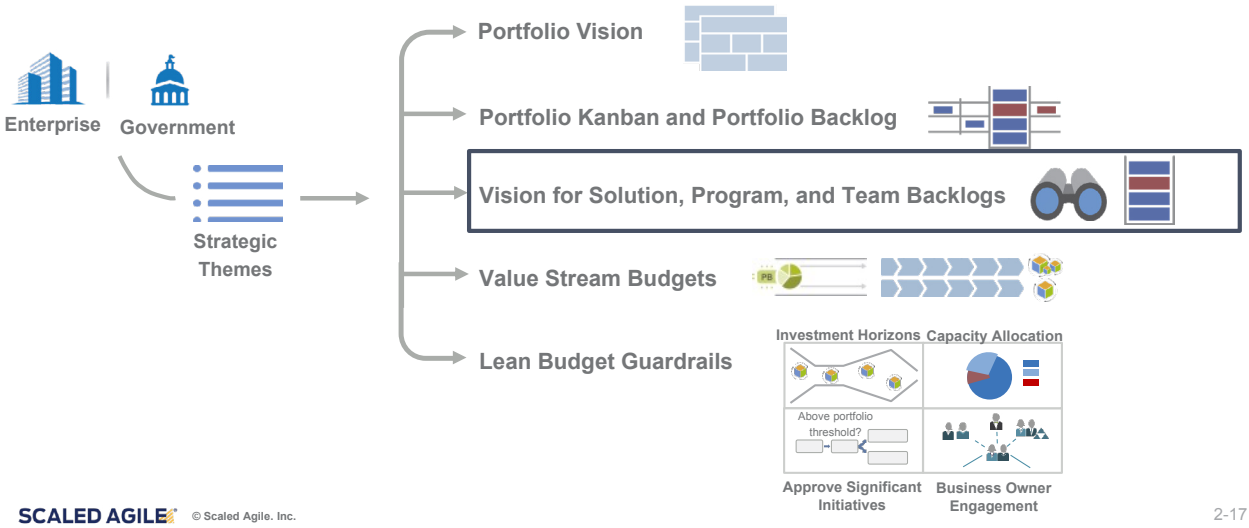
A description of the future state of the product or Solution

- Where are we headed with this product or Solution?
- What problem does it solve?
- What Features and benefit hypotheses do we think it provides?
- For whom does it provide benefit?
- What nonfunctional requirements (NFRs), such as performance, reliability, platforms, and so on, does the Solution deliver?

Common formats
Rolling wave briefings
Vision document
Preliminary data sheet
Draft press release

Influence of Strategic Themes

Strategic Themes influence the Product/Solution Vision



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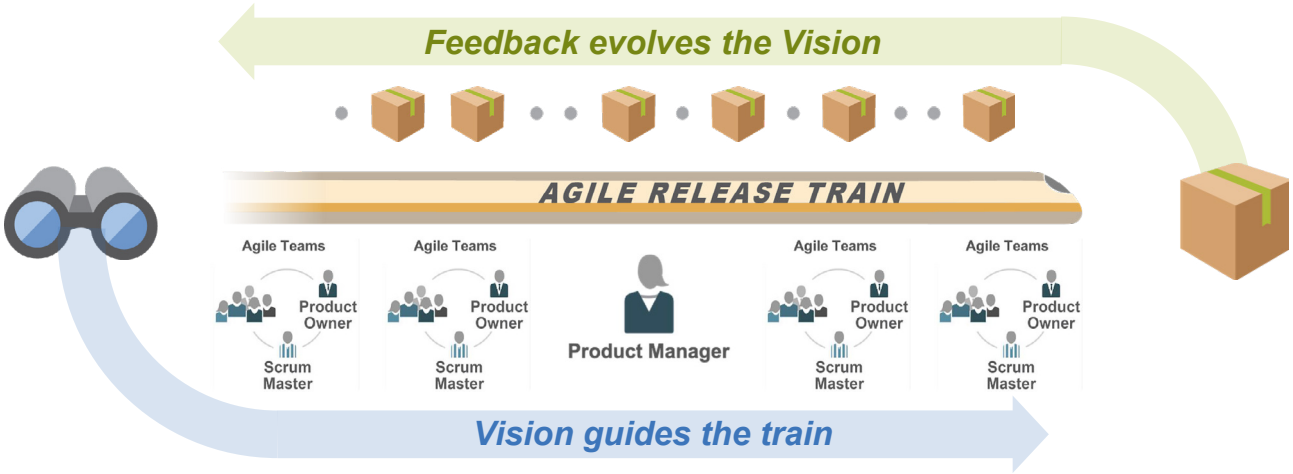
Product Management creates the Vision for the ART

Product Management creates the Vision, which evolves from Customer feedback and learnings of the ART



2-18

Express the future state as a Vision

A long view:

- How will our portfolio of future Solutions solve the larger customer problems?
- How will these Solutions differentiate us?
- What is the future context within which our Solutions will operate?
- What is our current business context, and how must we evolve to meet this future state?

Vision: A postcard from the future

- Aspirational, yet realistic and achievable
- Motivational enough to engage others on the journey

Result: Everyone starts thinking about how to apply their strengths in order to get there.

Switch: How to Change Things When Change is Hard, Heath and Heath, Broadway Books, 2010

2-19

Video: Terrific Transport Corporation Strategic Themes

Duration 5 min

Anthea Bowen, CEO of the Terrific Transport Corporation (TTC), and Pat Bakker, Solution Manager, review TTC's Strategic Themes.

Click to here to play video
http://bit.ly/ttcallhands

2-20

Discussion: Strategic Themes for the Van Program

Duration: 5 min

- As a class, discuss how these Strategic Themes will influence the work of POs and PMs on the Van Program.

	Strategic Themes
Truck Program	Increase Truck Program sales volume by 15%
Van Program	**Obtain gold safety standard status with Van Program**
Autonomous Vehicle Program	Triple Autonomous Vehicle Program revenue within 18 months through commercial expansion
Autonomous Delivery Program	Capture dominant autonomous delivery market share in zones 1 and 2 within 18 months
	Expand the Giving-1 Program to all Terrific Transport Locations

2-21

Postcard from the future for the Van Maintenance Advisor

Dear Terrific Transport

Thank you for creating the Van Maintenance Advisor. Customized maintenance schedules for each van have reduced our repair costs, increased driver safety, and increased revenue because our vans are on the road and functional.

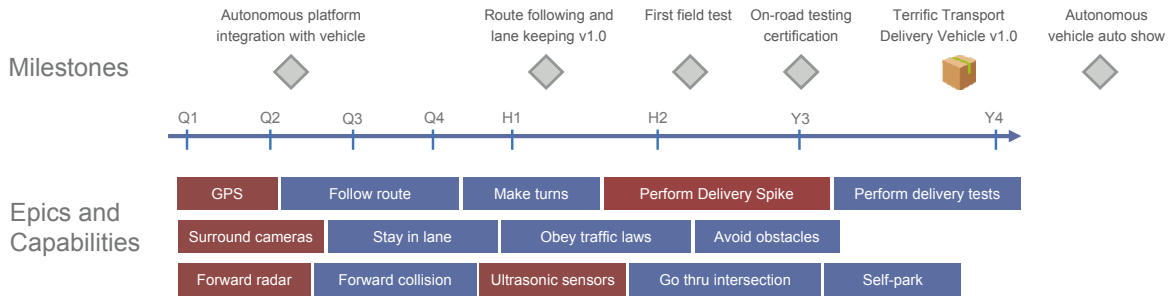
—Local Courier Services, Inc.

To: Terrific Transport Corporation

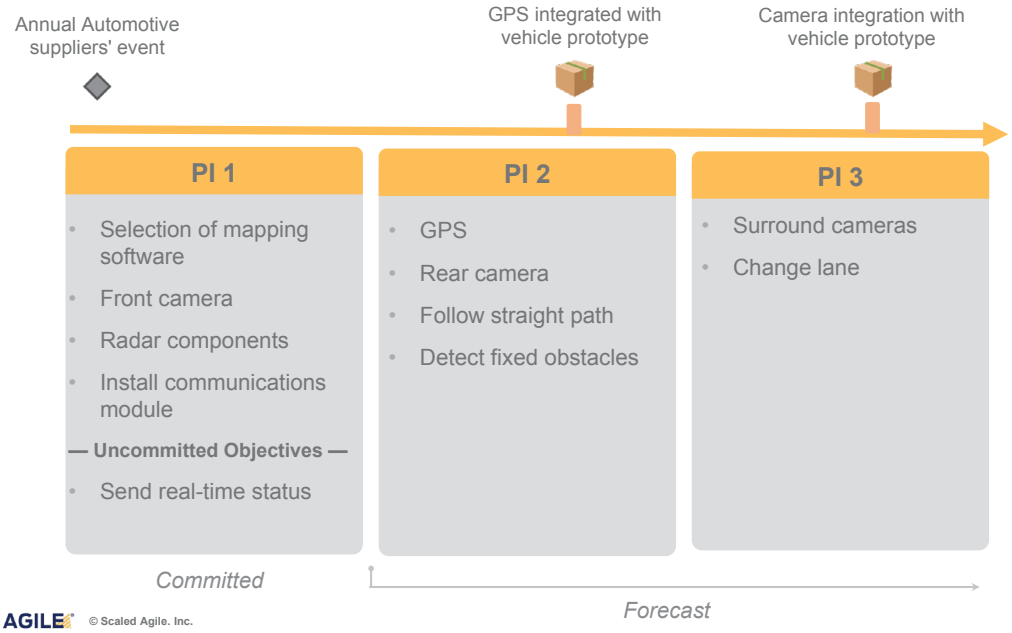
2-22

2.3 Solution and PI Roadmaps

Solution Roadmaps provide a multi-year view



PI Roadmaps are shorter-term with more fidelity



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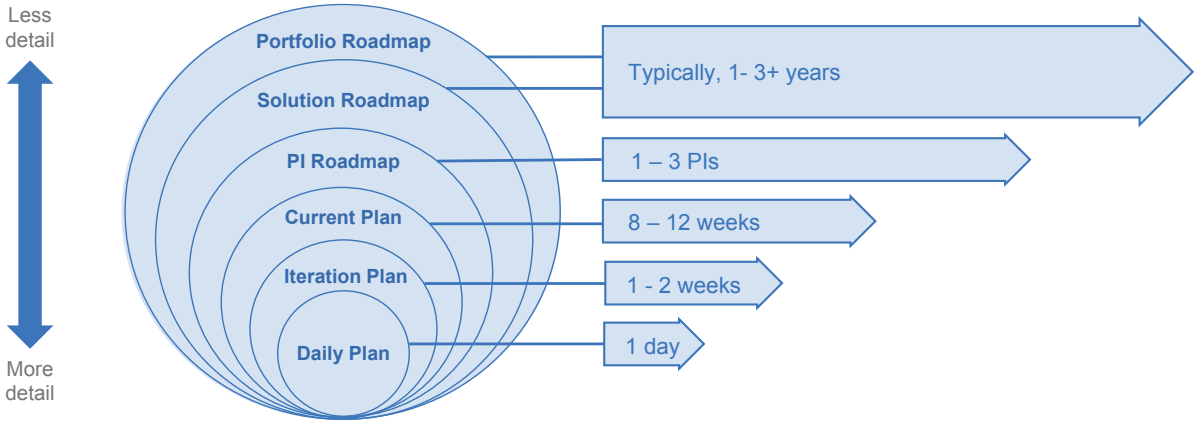
Roadmaps link strategy to execution



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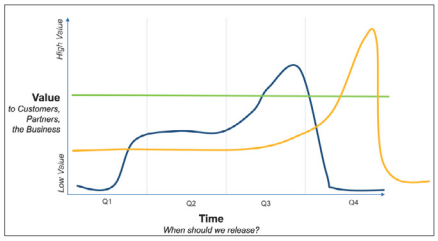
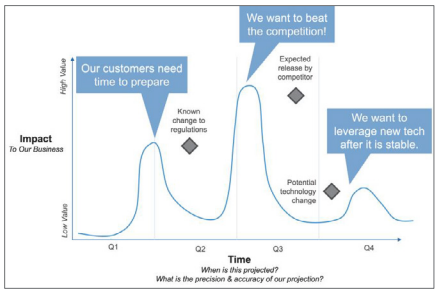
Market dynamics influence Solution and PI Roadmaps

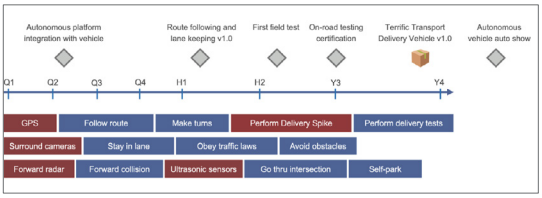


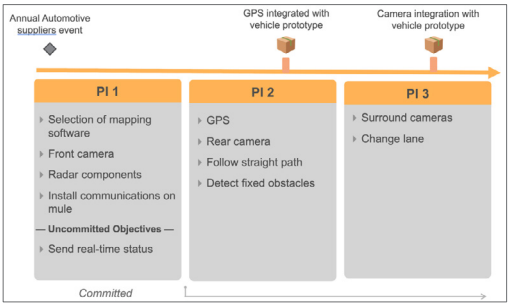
Market Rhythms



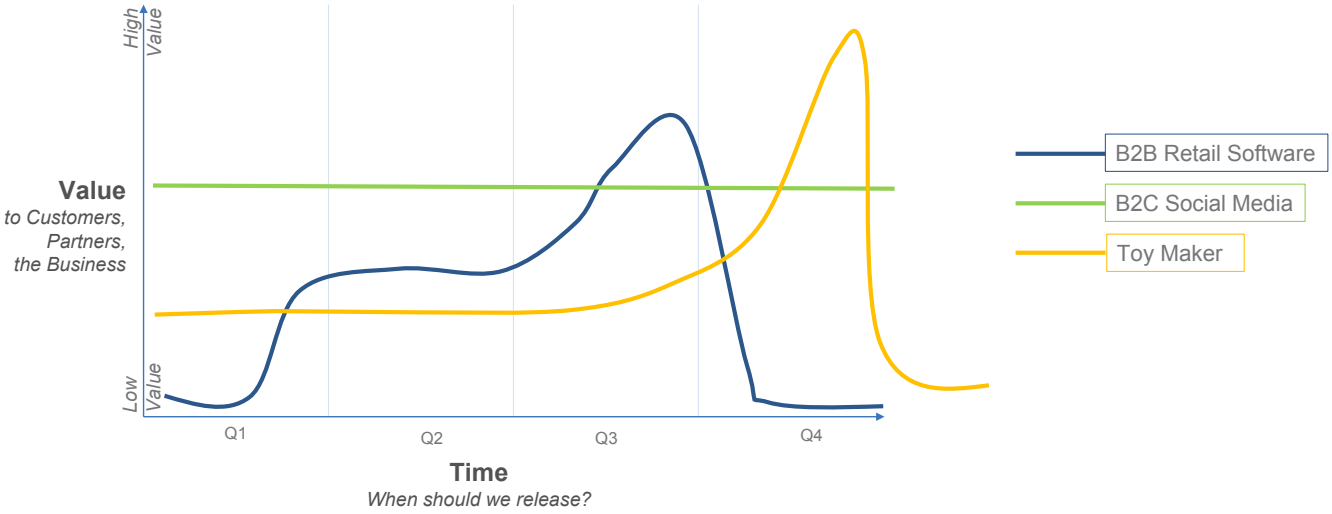
Market Events

Influence

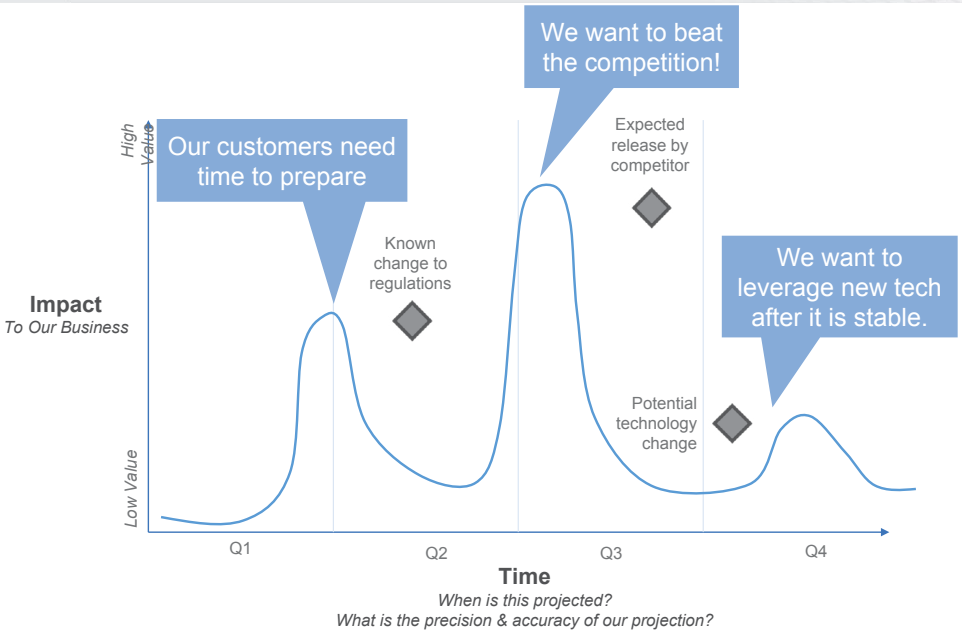




Market rhythms are cyclical and predictable



Market events are ad-hoc and often unpredictable



2-29

Activity: Consider market rhythms for optimum release timing

Prepare 5 min | Share 10 min

- The Van Maintenance Advisor requires new hardware. The System Architect has informed the Product Management team that Customers will have to take their vans out of service for approximately one day to install the new hardware.
- Approximately 1/3 of your van customers are serving the the local retail market while 1/3 are serving the medical specimen market.
  - **Step 1:** Draw a market rhythms chart. Add one line for each market segment to help determine when to release the new hardware and minimize disruptions to customers.
  - **Step 2:** Be prepared to share with the class.

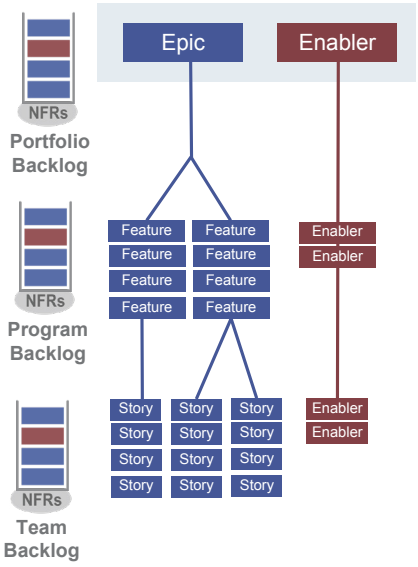
SCALED AGILE

2-30

2.4 Epics, Features, and Stories

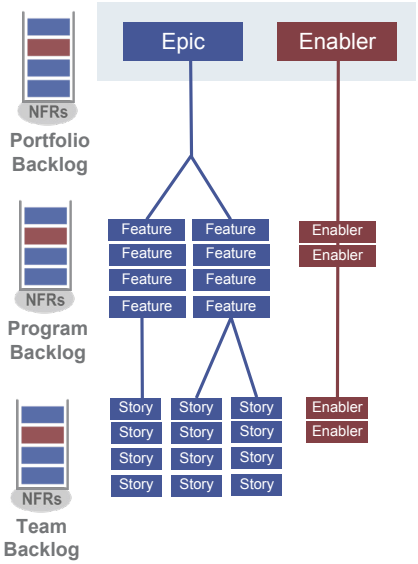
Summary of SAFe requirements

- An Epic is a container for a significant Solution development initiative that captures the more substantial investments that occur within a portfolio.
- A Feature is a service that fulfills a stakeholder need. Each Feature includes a name, a benefit hypothesis, and acceptance criteria. A Feature is sized or split, as necessary, to be delivered by an ART in a PI.
- Stories are short descriptions of a small piece of desired functionality. Stories are written from the perspective of the user.
- Enablers support the activities needed to extend the Architectural Runway to provide future business functionality. Enablers are captured in various backlogs throughout SAFe.

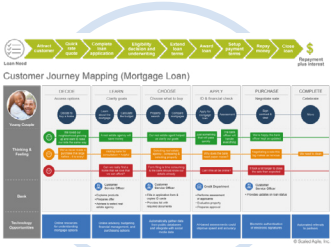


More about Epics

- There are two types of Epics:
  - *Business Epics* directly deliver business value
  - *Enabler Epics* support the Architectural Runway and future business functionality
- Portfolio Epics are typically cross-cutting, typically spanning multiple value streams and PIs
- Epics need a Lean business case, the definition of a minimum viable product (MVP), an Epic Owner, and approval by LPM

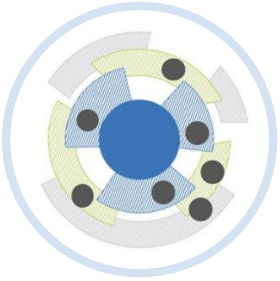


Design Thinking tools support PMs and POs in creating Features



Customer Journey Maps

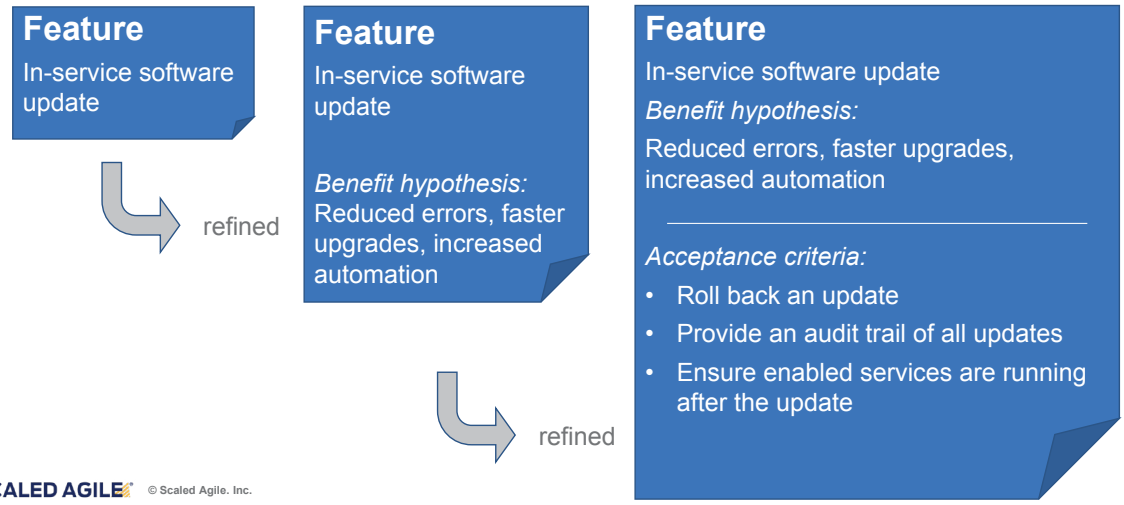
Personas



Whole-Product Thinking

Analysis and refinement ensure Features are ready for implementation

Features may start as a one sentence overview with more details added in PI Planning and backlog refinement meetings.



2-35

Features are implemented by Stories

- Stories are small increments of value that can be developed in days and are relatively easy to estimate.
- Story form of user voice captures role, activity, and goal.
- Features fit in one PI for one ART. Stories fit in one Iteration for one team.

Feature

Feature:
Shipping Method Selection
Benefit hypothesis:
Users can select a shipping method based on cost, delivery speed, and carrier

Enabler Story

Determine how to calculate the shipping costs

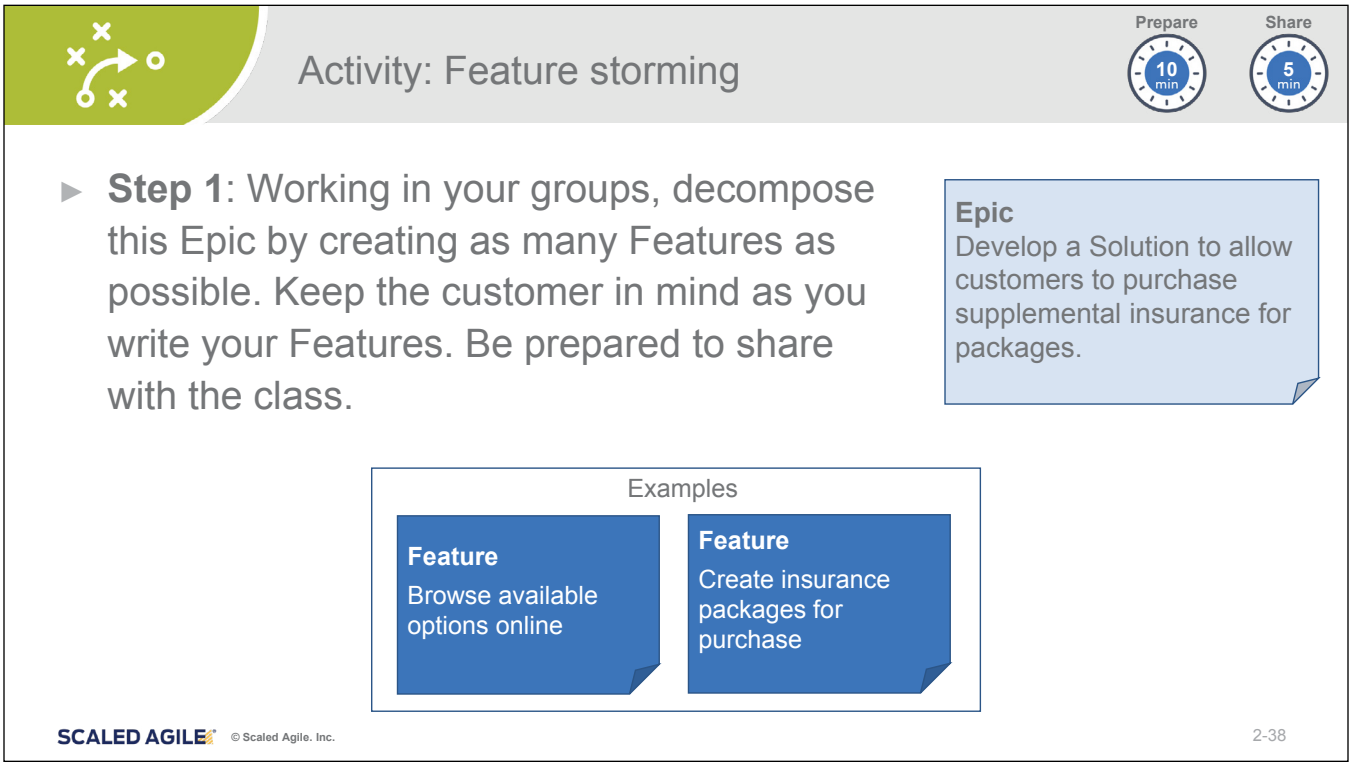
User Story

As a book purchaser, **I want** to see the price for each shipping method for my current order **so that** I can select a shipping method based on price.

2-36

Creating Epics to fulfill the Vision

	Epic Hypothesis Statement
Funnel entry date	May 18th
Epic name	TTC Supplemental Insurance
Epic owner	Pat Bakker
Epic description	Develop a solution to allow customers to purchase supplemental insurance for packages. **For** merchants **Who** want to provide additional insurance for high-value packages, **The** supplemental insurance coverage **Is an** optional upgrade **That** increases the standard coverage for packages. **Unlike** our standard insurance offering, **Our solution** provides additional coverage against theft and natural disaster.
Business outcomes	Higher customer satisfaction, additional revenue
Leading indicators	20% of all policies are upgraded to supplemental policies in first 90 days following launch
Nonfunctional requirements	Offering must be scalable to all delivery regions.



Activity: Feature refinement

Prepare 10 min | Share 5 min

- **Step 1**: Take one of the Features that you have created in the previous activity. Refine the Feature with a description, benefit hypothesis, and acceptance criteria.
- **Step 2:** Identify who is the primary beneficiary of acceptance criteria. Be prepared to share with the class.

Example

Feature Description:

Supplemental insurance coverage

Benefit hypothesis:

Protects the value of packages from loss or damage during delivery

Acceptance criteria:

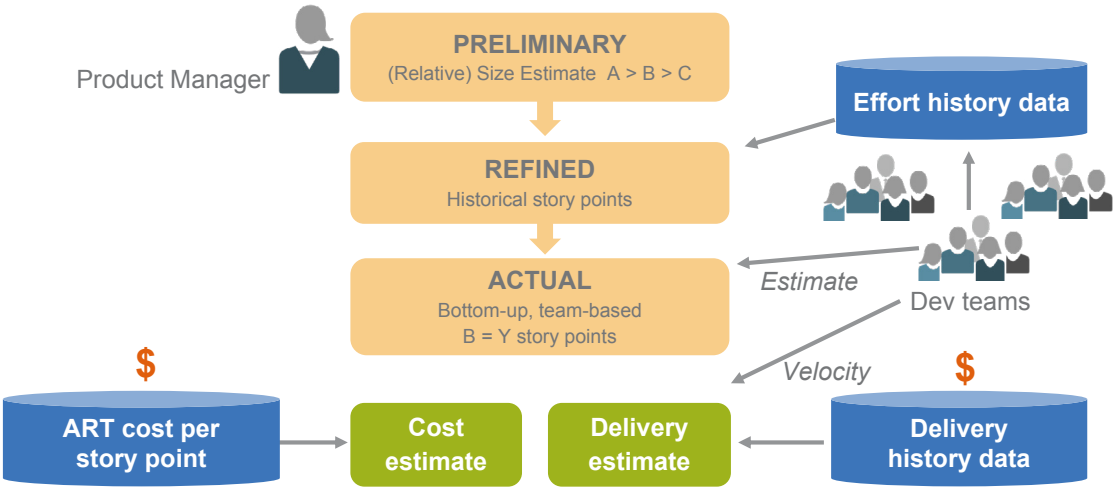
- Option available anytime prior to shipping
- Accessible via website and mobile app
- Integrated with Order Management System

Estimating Epics

- Estimating Epics can be challenging but enables informed decision-making
- Epic costs are initially estimated using T-shirt sizes (S, M, L, XL, XXL) and refined during implementation
- Epic duration is estimated using a combination of the following
  - The Epic's estimated story point size
  - The historical velocity of the affected ARTs
  - The capacity the ARTs have allocated to the Epic

Estimating Features

Typically involves a series of successive refinements



Relative estimating

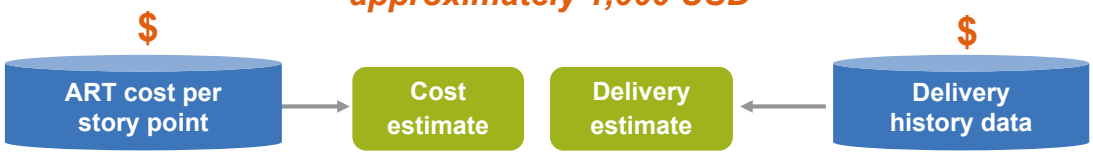
- Agile Teams use Story points and relative estimating to quickly arrive at size estimates for Stories
- Product Managers can use historical data to quickly estimate the size of Features in Story points as well
- Feature estimates can then be rolled up into Epic estimates in the Portfolio Backlog
- Portfolio Managers and other planners can use their ART's capacity allocation to estimate how long a portfolio Epic might take under various scenarios

Estimating cost

Once the Feature has been estimated in Story points, a cost estimate for the Feature can be quickly derived.

- Calculate the burdened cost for a team in an Iteration length
- Divide that by their PI velocity to get average cost per Story point

*Example: If a team has an average velocity of **40 points**, and their cost is **40,000 USD per Iteration**, then each Story point costs **approximately 1,000 USD***



2.5 The definition of done

Set quality expectations with the definition of done

The definition of done communicates the completeness for an increment of value and creates a shared understanding of what work was completed as part of an Increment.

Team Increment	System Increment	Solution Increment	Release

Definitions of done in the team increment

Team Increment

- Stories satisfy acceptance criteria
- Acceptance tests passed (automated where practical)
- Unit and component tests coded, passed, and included in business verification testing
- Cumulative unit tests passed
- Assets are under version control
- Engineering standards followed
- NFRs met
- No must-fix defects
- Stories acceptance by Product Owner

Definitions of done in the system increment

System Increment

- Stories completed by all teams in the ART and integrated
- Completed features meet acceptance criteria
- NFRs met
- No must-fix defects
- Verification and validation of key scenarios
- Included in build definition and deployment process
- Increment demonstrated; feedback achieved
- Acceptance by Product Management

Definitions of done in the Solution increment

Solution Increment

- Capabilities completed by all trains and meet acceptance criteria
- Deployed/installed in the staging environment
- NFRs met
- System end-to-end integration verification, and validation done
- No must-fix defects
- Included in build definition and deployment/transition process
- Documentation updated
- Solution demonstrated; feedback achieved
- Accepted by Solution Management

Definitions of done in release

Release

- All capabilities done and meet acceptance criteria
- End-to-end integration and the verification and validation of the Solution is done
- Regression testing done
- NFRs met
- No must-fix defects
- Release documentation complete
- All standards met
- Approved by Solution and Release Management

ART definition of done

Team Increment	System Increment	Solution Increment	Release

More homogeneous

More context-dependent

RTE, PM, and System Architect

Scrum Masters and POs

The definition of done has distinct areas of concern

Policies about how to validate deliverables	Required tasks that reflect technical practices	Required tasks that reflect Product management practices
Example • Stories satisfy acceptance criteria • Unit and acceptance tests pass	**Example** • All code checked into version control • API and/or data model documentation updated	**Example** • Releases notes created for marketing and sales • User documentation updated • Website FAQs updated

- Definitions of done ensure functionality is delivered in accordance with internal rules and policies
- Acceptance criteria ensure functionality behaves as expected

2.6 Program Backlog and Kanban

SAFe has multiple, connected backlogs and Kanban systems

Portfolio Kanban

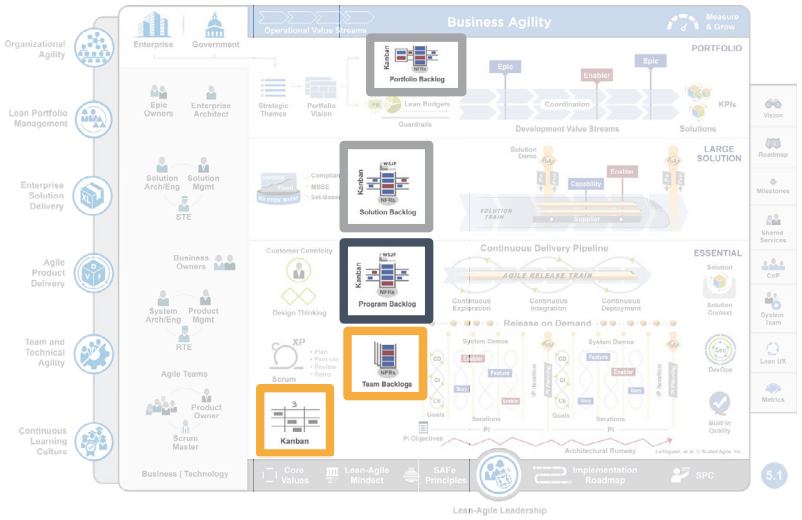
Solution Kanban

Program Kanban

Team Kanban

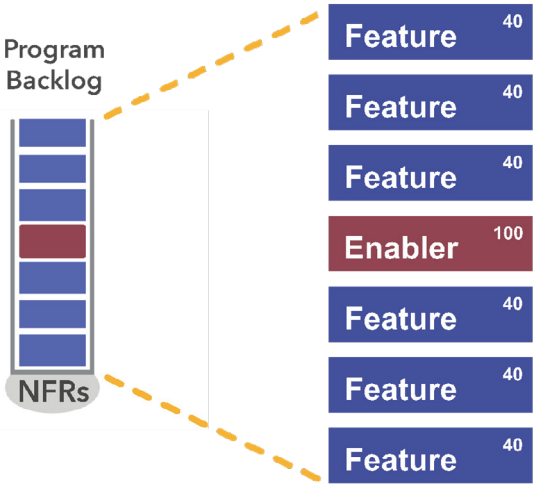
Product Management

Product Owner



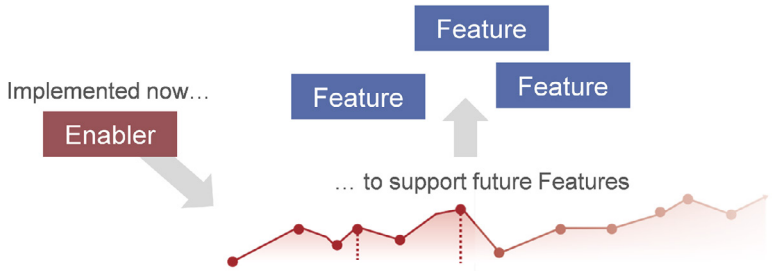
Features are managed through the Program Backlog

The Program Backlog is the holding area for upcoming Features that will address user needs and deliver business benefits for a single ART.



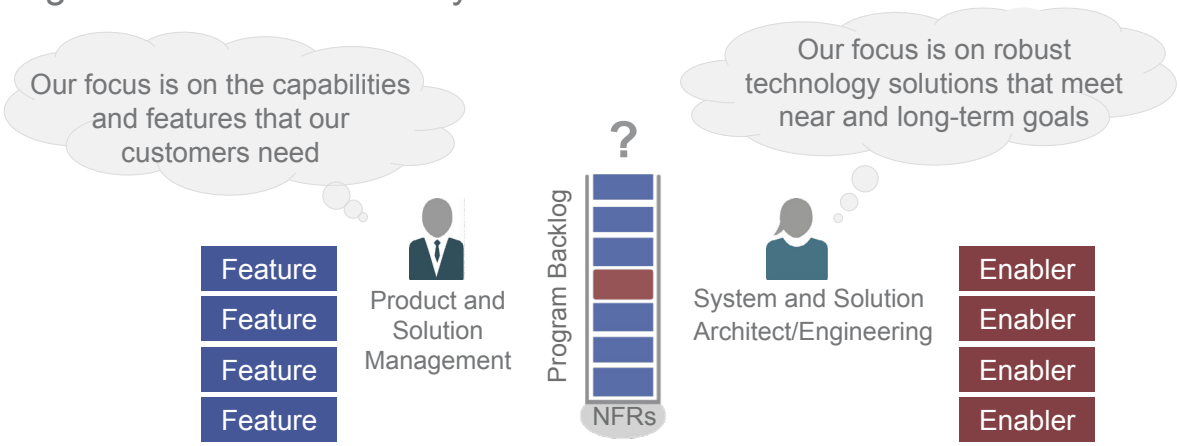
Partner with System Architect/Engineering

- Support Enabler items that provide sufficient Architectural Runway
- Work with System Architect/Engineering team to sequence technical infrastructures that will enable delivery of new business functionality



How much architecture?

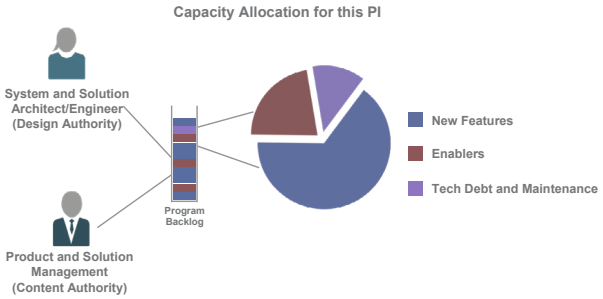
Product Management collaborates with System Architects to balance business Features and Enablers and to ensure investment in just enough Architectural Runway.



Capacity allocation

Helps balance functionality with Architectural Runway

1. Determine how much capacity is to be allocated to each type
2. Establish policies to determine how much work is performed for each type



Capacity allocation example policies

1. We agree on the percentage of capacity to be Devoted to new Feature development versus Enablers, tech debt, and maintenance at each boundary.
2. We agree that the Architect has design authority and prioritizes the work in that class.
3. We agree that content authority (Product Management) prioritizes Program Backlog items.
4. We agree to collaboratively prioritize our work based on economics.
5. We agree to collaborate to sequence work in a way that maximizes Customer value.

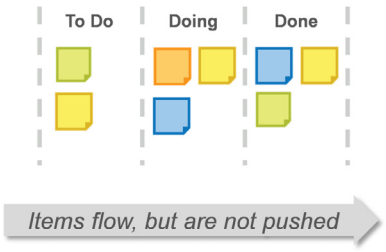
Activity: Draft your capacity allocation policy

Prepare 5 min | Share 10 min

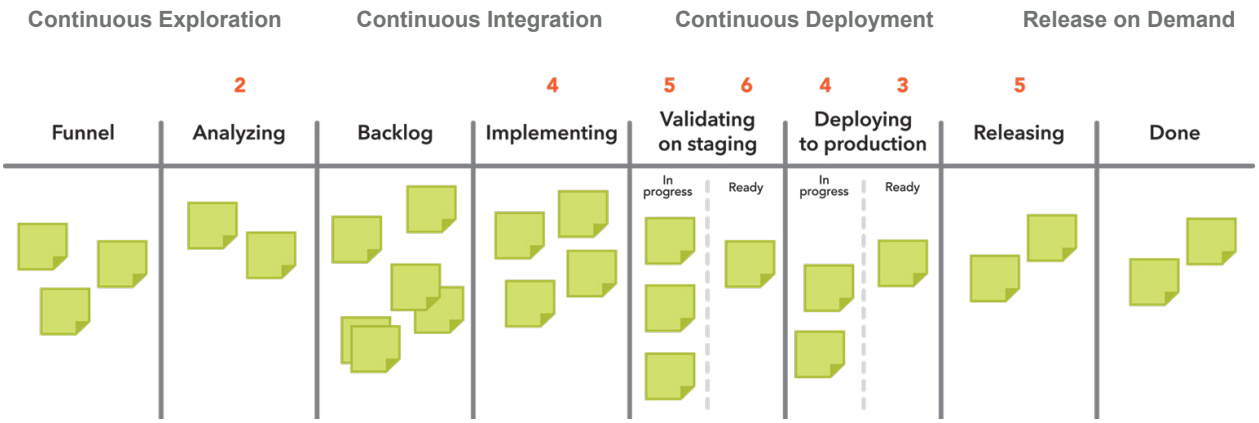
- **Step 1**: Consider how you would use capacity allocation in your organization.
- **Step 2**: Draft a capacity allocation policy for your ART that you discuss with your key stakeholders. Be prepared to share with the class.

Kanban summarized

- Visual tool for monitoring and managing workflow
- Columns represent steps in the work process
- Work items (Features, Enablers, Stories, Epics, and Capabilities) flow across the board as capacity allows
- Explicit process policies define how and when a work item moves across the board
- Work-in-process (WIP) promotes flow and the continuous delivery of value



The Program Kanban facilitates flow through the CD Pipeline

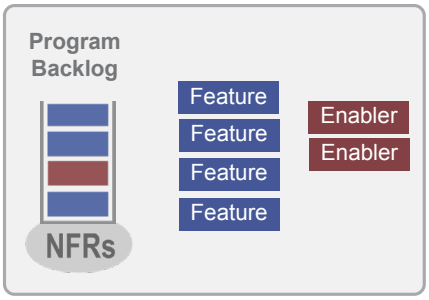


Prioritize Features for optimal ROI

In a flow system, *job sequencing* is the key to improving economic outcomes.

To prioritize based on Lean economics, we need to know two things:

- The cost of delay in delivering value
- What is the cost to implement the valuable thing?



If you only quantify one thing, quantify the cost of delay.
—Donald G. Reinertsen

Prioritization anti-patterns

HiPPo – The highest paid person makes the decision.
"The Senior VP said we should do this project."

Squeaky Wheel – The person who yells the loudest or makes the biggest promise of revenue.
"Fund my project and we will make a billion dollars!"

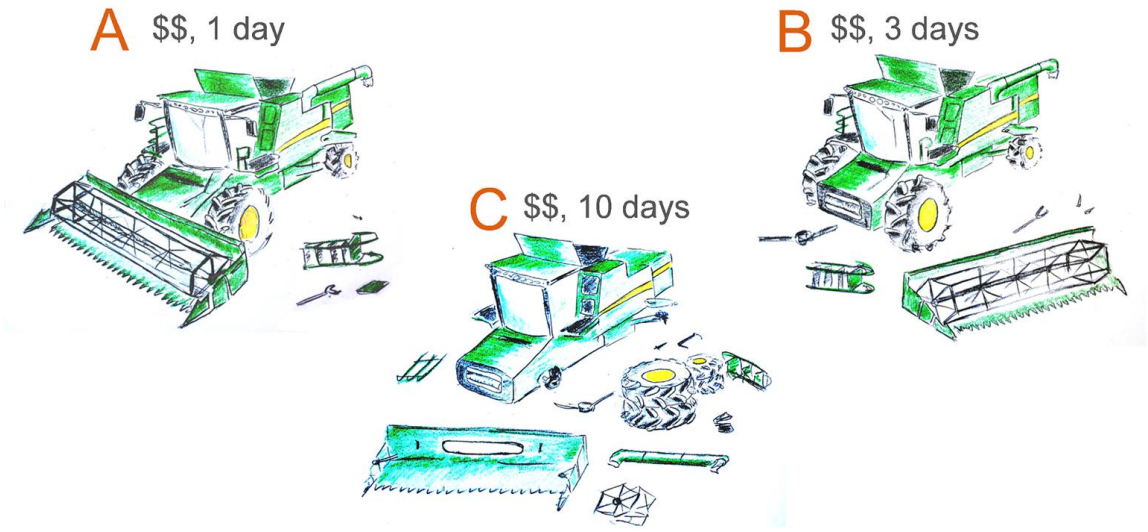
ROI – The decision is made based exclusively on profit without considering other factors.
"The ROI indicates we will make a 30% profit."

Role

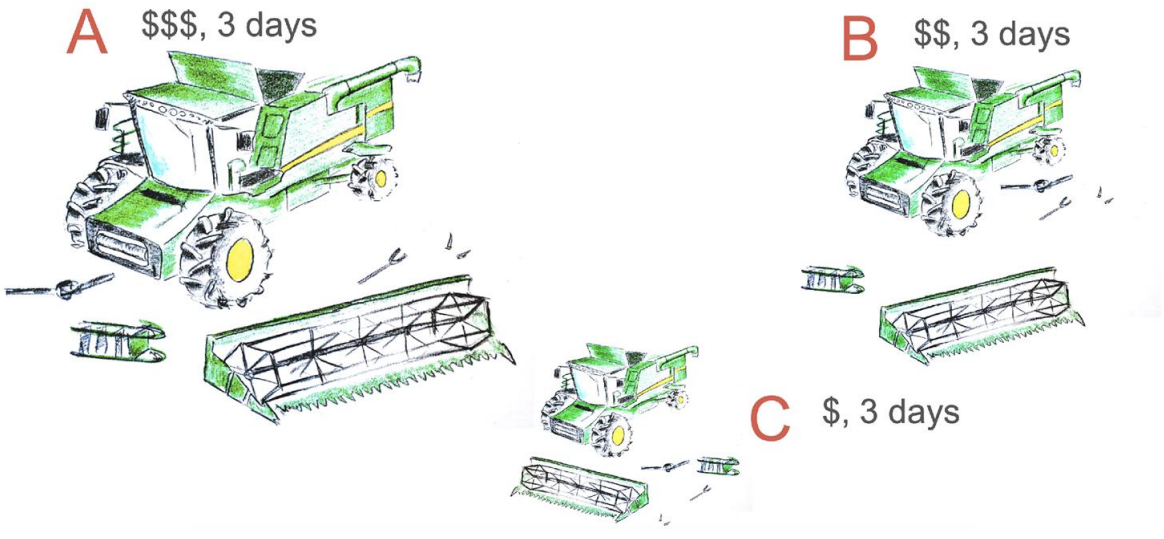
I'm the PM, so I should do it!

Product and Solution Management

Example with equal cost of delay: Which job first?

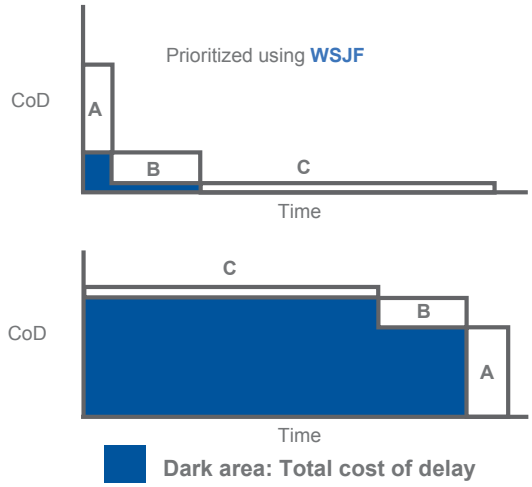


Example with equal duration: Which job first?



General case: Any cost of delay and duration

In the general case, give preference to jobs with shorter duration and higher cost of delay, using WSJF:



$$WSJF = \frac{\text{Cost of delay}}{\text{Job duration (Job size)}}$$

Feature	Duration	Cost of delay	WSJF
A	1	10	10
B	3	3	1
C	10	1	0.1

2-65

Components of cost of delay

User-business value

Relative value to the Customer or business

- They prefer this over that
- Revenue impact?
- Potential penalty or other negative impact?

Time criticality

How user-business value decays over time

- Is there a fixed deadline?
- Will they wait for us or move to another Solution?
- What is the current effect on Customer satisfaction?

Risk reduction and opportunity enablement

What else does this do for our business

- Reduce the risk of this or future delivery?
- Is there value in the information we will receive?
- Enable new business opportunities?

2-66

Calculate WSJF with relative estimating

To calculate WSJF, teams need to estimate cost of delay and duration

- For duration, use job size as a quick proxy for duration
- Relative estimating is a quick technique to estimate job size and relative value
- WSJF stakeholders: Business Owners, Product Managers, Product Owners, and System Architects

$$\text{WSJF} = \frac{\text{User - Business Value} + \text{Time Criticality} + \text{Risk Reduction and/or Opportunity Enablement}}{\text{Job Size}}$$

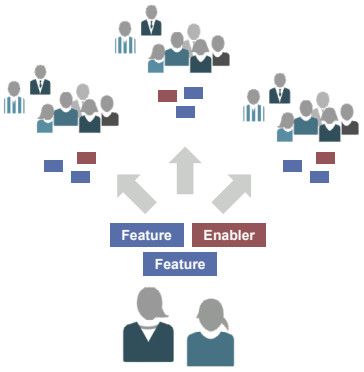
Activity: Prioritizing the Program Backlog

- **Step 1**: Select three Features from the "Feature storming activity" and prioritize them using the WSJF template in the remote template.
- **Step 2**: Complete one column at a time. Start by selecting the smallest item and labeling it as “1”. Each column of the template must have at least one item labeled “1”. Be prepared to share your WSJF prioritization.

How much preparation is enough?

Too much preparation and too little preparation can cause problems

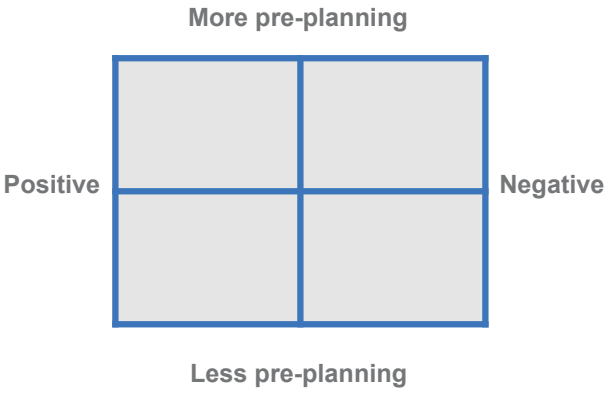
- More preparation may be needed if creating entirely new Features or the Architectural Runway
- Too much preparation can inhibit exploration, interaction, and emergent designs/solutions during PI Planning
- Ongoing socialization of Features and Enablers, as well as adequate backlog refinement, influence preparedness



Discussion: Just enough pre-planning

Duration: 5 min

- As a class, discuss how the amount of pre-planning that you do can have positive outcomes and negative outcomes.
- We'll capture your thoughts in quadrants like those shown at the right.
- Consider how the Lean-Agile mindset and SAFe practices influence and enable PI Planning preparedness.



Action Plan: Preparing for PI Planning

Duration 5 min

On the Action Plan page in your workbook, answer the following questions:

- Do you have a Vision? If not, what would be required to create one?
- Have you considered the effects of market rhythms and events in your Roadmap?
- Have you developed personas to assist your ART in developing Features?

Lesson review

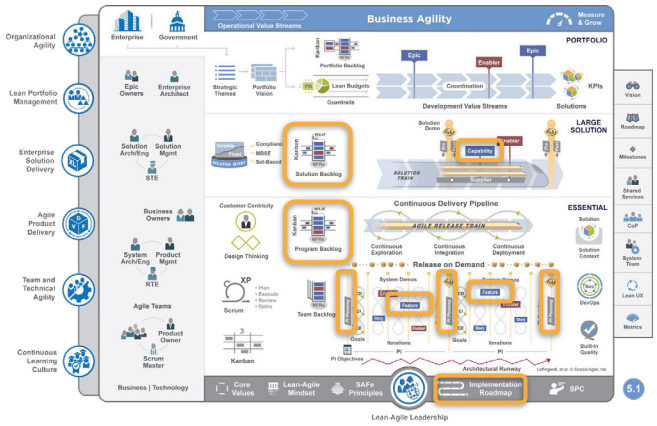
In this lesson, you:

- Described PI Planning
- Described the Product/Solution Vision
- Identified how to forecast work through Roadmaps
- Created beneficial Features
- Identified how to manage the Program Backlog and Kanban

Articles used in this lesson

Read these Framework articles to learn more about topics covered in this lesson

- PI Planning
  https://www.scaledagileframework.com/pi-planning/
- Implementation Roadmap
  https://www.scaledagileframework.com/implementation-roadmap/
- Program and Solution Backlog
  https://www.scaledagileframework.com/program-and-solution-backlogs/
- Features and Capabilities
  https://www.scaledagileframework.com/features-and-capabilities/



Continue your SAFe journey with the following resources

Watch this 6 minute video to help you Prepare for PI Planning https://bit.ly/Video-PIPlanningPrep	**Watch this video playlist to get a 5 minute Overview of WSJF and a 5 minute tutorial on how to calculate WSJF to prioritize the Program Backlog** https://bit.ly/Playlist-WSJF
Use this Collaborate Template to Feature Storm and Refine https://bit.ly/Template-FeatureRefining	**Create Epics using this Collaborate Template** https://bit.ly/Template-EpicHypothesisStatement

Do you have a Vision? If not, what would be required to create one?

Have you considered the effects of market rhtyhms and events in your Roadmap?

Have you developed personas and a whole product model to assist your ART in developing Features?

Lesson 2 notes

Enter your notes below. If using a digital workbook, save your PDF often so you don't lose any of your notes.

Lesson 3

Leading PI Planning

SAFe® Course - Attending this course gives learners access to the SAFe Product Owner/Product Manager exam and related preparation materials.

POPM SAFe 5

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Lesson Topics

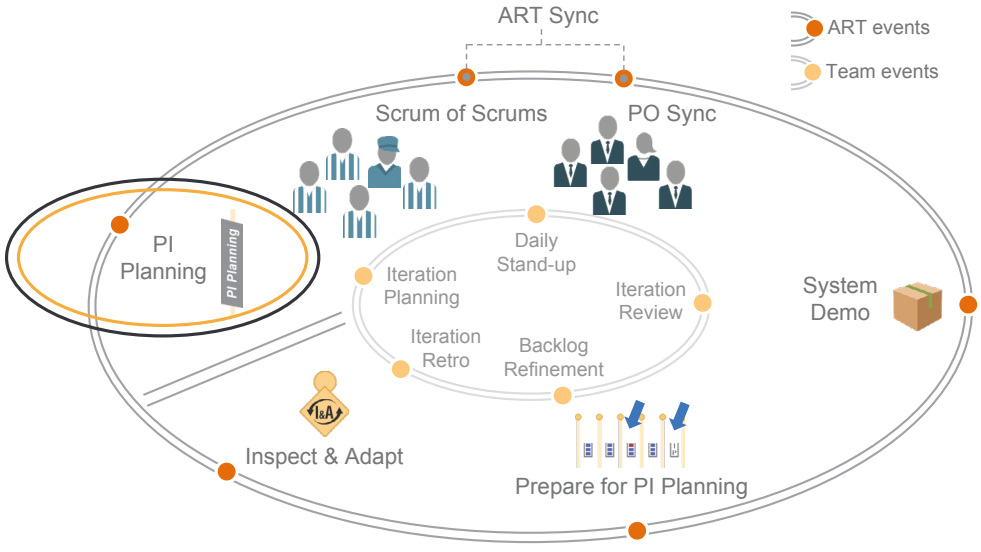
3-2

Learning objectives

At the end of this lesson, you should be able to:

- Identify how to communicate the Vision
- Create PI Objectives
- Organize and manage dependencies
- Analyze risks

Leading PI Planning



3.1 Communicate the Vision

What POs and PMs do during PI Planning – Day 1

- Communicate:
  - The Vision
  - Top 10 Features
- Support team breakouts
- Collaborate to decompose Features into Stories
- Negotiate scope
- Review draft PI plans and provide feedback
- Participate in management review of draft plans

Business context	8:00–9:00
Product/Solution Vision	9:00–10:30
Architecture Vision and development practices	10:30–11:30
Planning context and lunch	11:30–1:00
Team breakouts	1:00–4:00
Draft plan review	4:00–5:00
Management review and problem solving	5:00–6:00

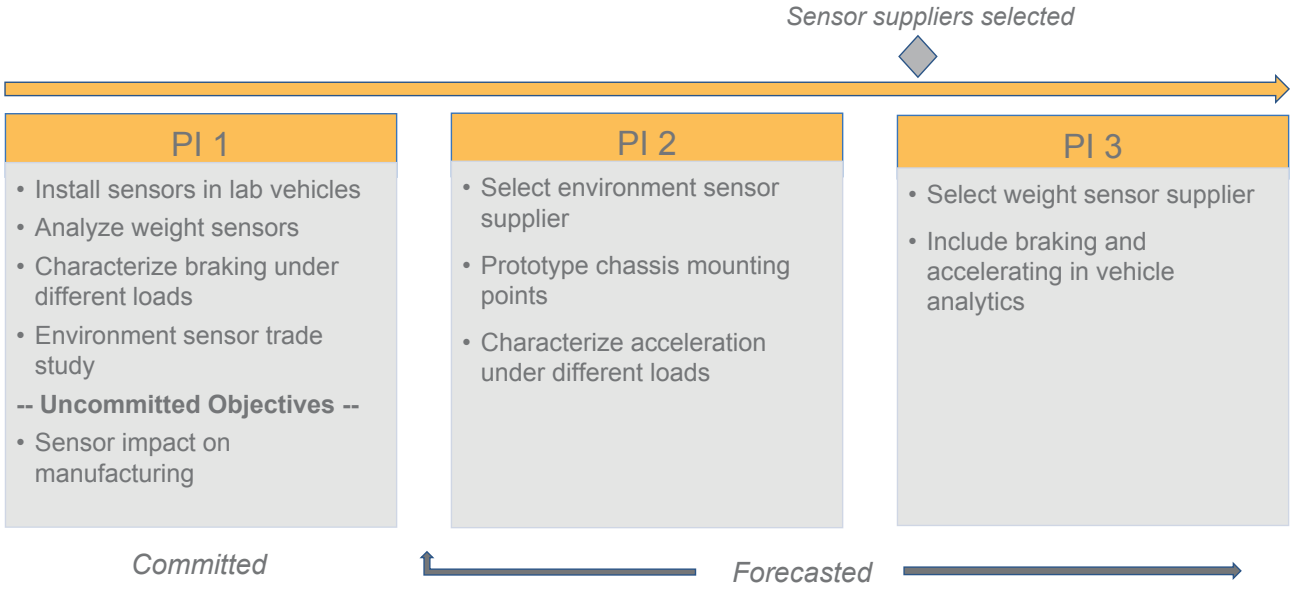
Communicate the Vision

- Present to the ART how the Vision aligns with Strategic Themes
- Prepare materials so that each team can see the Vision
- Provide user personas to illustrate how the Vision improves the lives of your Customers
- Explain the purpose of any nonfunctional requirements
- Map Vision to Strategic Themes and Solution Context

Communicate the PI Roadmap

- Show how the PI Roadmap in this PI helps fulfill the Vision
- Communicate the PI Roadmap as part of your Vision to assist in PI Planning activities
- Highlight Program Epics and Milestones

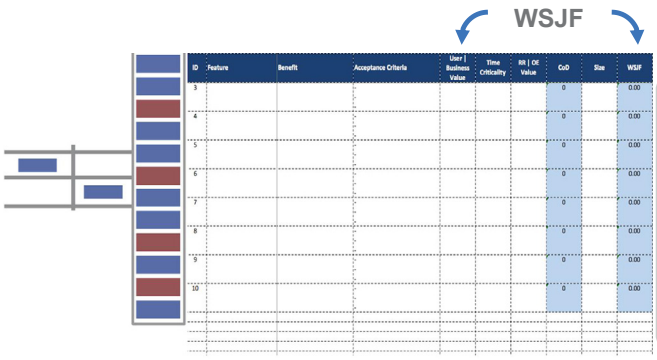
PI Roadmap for the TTC Van Program



Communicate the top 10 Features

- Communicate the top 10 Features to the ART. There should be no surprises as teams should have seen these Features evolve over time through backlog refinement.
- Be prepared to explain why these Features were chosen. Transparency is a SAFe Core Value. Socializing Features before PI Planning helps Product Management develop right-sized Features.
- Remember that the top 10 is a guideline. The ART may pull more than 10 Features or less than 10 Features.

TTC Van Program top 10 Features



Program Backlog spreadsheet

Top Features for PI 1

1. Install sensors in lab vehicles
2. Characterize weight sensors in different vehicle configurations
3. Analyze braking under different loads
4. Model performance under emergency brake conditions
5. Environment sensor trade study
6. Sensor impact on manufacturing
7. Fix cold weather calibration defects
8. Include climate history in oil change calculations
9. Add cargo loads to tire rotation recommendations
10. Research chassis mounting methods

Activity: Communicate the Vision

Prepare 10 min

Share 15 min

- Step 1: Use the TTC Van Program Vision, PI Roadmap, and top 10 Features to communicate, as a Product Manager, the Van Program Vision to your ART.
- Step 2: Deliver your Vision to the ART. Be creative!

Support team breakouts

- Team breakout time is when Agile Teams work on planning how they will deliver Features in upcoming Iterations
- Product Owners lead this activity with their respective teams
- Product Managers support teams and provide additional insights and guidance

Present draft plans, participate in management review

- Teams present their draft plans with draft objectives, potential risks, and dependencies during the draft plan review.
- At the end of PI Planning - Day 1, the RTE facilitates the management review and problem-solving meeting.
- Management negotiates scope changes and resolves other issues by making planning adjustments. The planning adjustments are presented at the start of day 2.

Discussion: Addressing issues during management review and problem-solving

Duration 10 min

- During PI Planning, the team that works on spiking Enabler Stories for sensor impact on manufacturing is also assigned the Feature to install sensors in lab vehicles. This team doesn't believe they have capacity.
- What can you do to help resolve issues?

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3.2 Establish PI Objectives

3-16

What POs and PMs do during PI Planning – Day 2

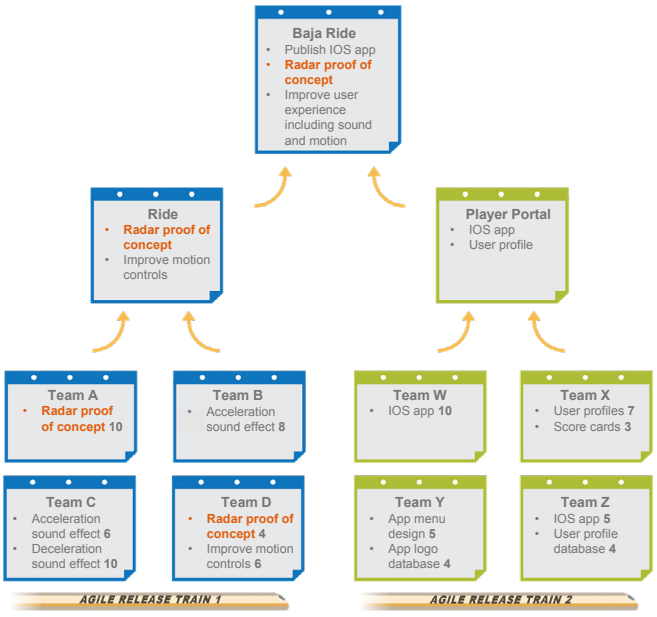
- Support team breakouts.
- Accept team PI Objectives.
- Establish business value with Business Owners.
- Participate in final plan review.
- Provide feedback on program risks.
- Participate in confidence vote. If applicable, rework and contribute to planning retrospective.

Planning adjustments	8:00–9:00
Team breakouts	9:00–11:00
Final plan review and lunch	11:00–1:00
Program risks	1:00–2:00
PI confidence vote	2:00–2:15
Plan rework if necessary	2:15–???
Planning retrospective and moving forward	After commitment

3-17

PI Objectives

- Are a summary of the business and technical goals that each team and the overall ART intend to achieve in the upcoming PI
- Are built largely from the bottom to top, as the teams estimate and identify them during PI Planning
- Should reflect what is important to the business as well as other stakeholders

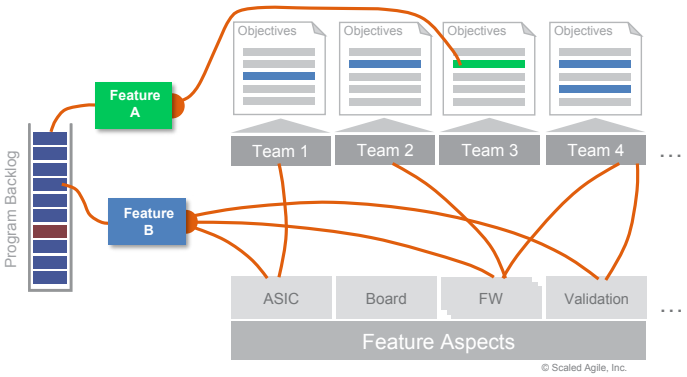


3-18

Why do we use PI Objectives?

- **Immediate feedback**: Team PI Objectives provide confirmation to business leaders that teams understand desired outcomes.
- **Decentralized decisions**: The business value of the team PI Objectives promote decentralized decision-making should the team need to adjust planned work.
- **Predictability without specificity**: Committing to PI Objectives instead of a specific Feature or Story enhances agility. Commitment to PI Objectives allows the team and the Product Owner to modify the planned work based on discovery and Customer input and still achieve the business value.
- **Commitment**: Teams, not business leaders, commit to the PI Objectives.

Distinguish Features from PI Objectives



Focus on Outcomes: During PI Planning, teams should be asking, "Is our goal to complete the listed features or is our goal to provide the outcomes desired by those features?"

- PI Objectives often relate directly to a Feature.
- Some Features can be delivered by individual teams; others (Feature B) require collaboration.
- In addition to Features and inputs to Features, other team objectives will appear.

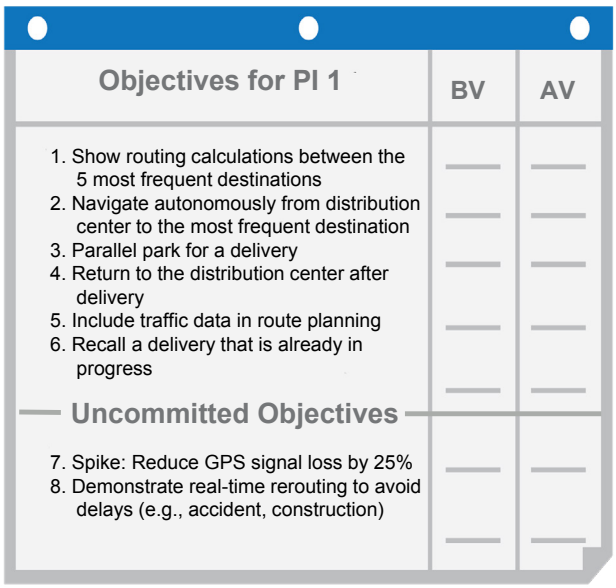
Tips for writing effective team PI Objectives

- Remove jargon. PI Objectives should be understandable to Business Owners and Customers.
- Describe the value and impact.
- Don't use Features or Stories as PI Objectives, as these can change.

Write SMART Objectives		
S	Specific	Intended outcome, start with an action verb
M	Measurable	Descriptive, Yes/No, quantitative, a range
A	Achievable	Within team's control
R	Realistic	Recognize factors that can't be controlled
T	Time bound	Can be accomplished within the PI

Create Alignment with PI Objectives

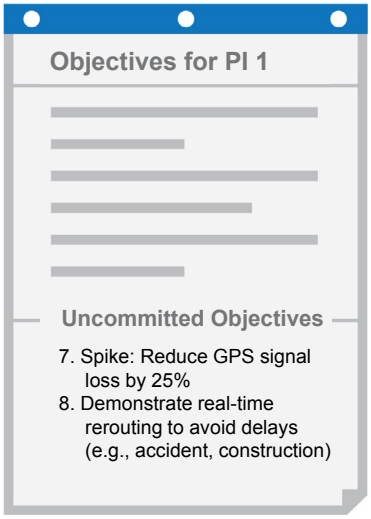
- Objectives are business summaries of what each team intends to deliver in the upcoming PI.
- They often directly relate to intended Features in the backlog.
- Other examples:
  - Aggregation of a set of Features
  - A Milestone, such as a trade show
  - An Enabler Feature supporting the implementation
  - A major refactoring



Maintain predictability with uncommitted objectives

Uncommitted objectives help improve the predictability of delivering business value.

- Uncommitted objectives are planned and aren't extra things teams do "just in case you have time"
- Uncommitted objectives are not included in the commitment; thereby, making the commitment more reliable
- If a team has low confidence in meeting a PI Objective, the PI Objective should be moved to uncommitted
- If an objective has many unknowns, consider moving it to uncommitted and put in early spikes
- Uncommitted objectives count when calculating load



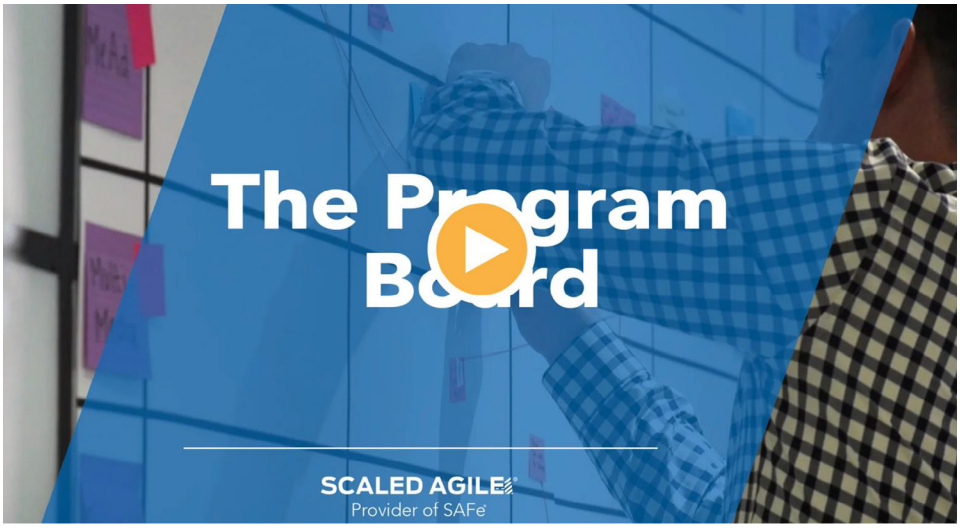
Considerations when assigning business value

Consideration	Description
Regulatory value	Legal or infrastructure functionality that, if not deployed, can result in fines, revenue loss, or damage to the Enterprise brand
Commercial value	Product/service functionality that brings new revenue or maintains existing revenue
Market value	Functionality that differentiates the product/service from competing products/services and new functionality needed to stay competitive
Efficiency value	Functionality that reduces operating costs, including technical debt or improvements in the pipeline
Future value	Functionality that focuses on enabling or realizing future value, including Enablers, proof of concepts (POCs), and research spikes

3.3 Manage dependencies

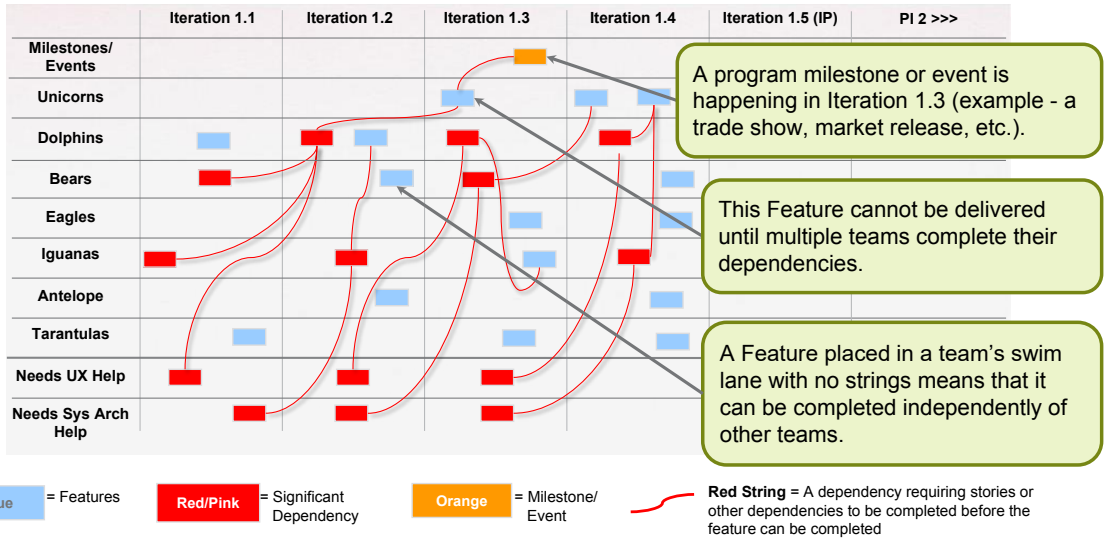
Video: The Program Board

Duration 10 min



http://bit.ly/SAFeProgramBoard

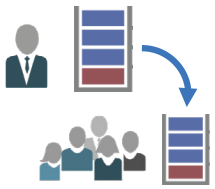
Using a program board to visualize work



Strategies for managing dependencies

Challenge	Potential Strategy
ART bottlenecks	Distribute work to other teams
Iteration dependencies	Adjust work sequencing to eliminate same iteration dependencies
Unbalanced teams	Adjust work between teams based on forecasted capacity
Complex critical path	Adjust work between teams or split Features and Stories

PI Planning can create options for releasing value sooner



Business priorities

1	Feature
2	Feature
3	Feature
4	Enabler
5	Feature
6	Feature
7	Feature
8	Feature
9	Feature
	...

During PI Planning, a team may suggest a sequence that creates options for releasing value sooner.

The PM can accept this sequencing or ask the team to retain the original sequencing based on other factors. (For example, a major Customer contract may be waiting on early validation from the first Story.)

Team analysis

3	Feature
4	Enabler
1	Feature
2	Feature
9	Feature
5	Feature
6	Feature
7	Feature
8	Feature
	...

Activity: Identify dependency issues and resolve them

- **Step 1:** Review the program board
  - What potential issues do you see?
  - Who should the Product Managers and Product Owners collaborate with to help minimize dependencies and address the issues you identified?

3.4 Manage risks

Program, team, and other risks

- Risks to successful program execution can be local to a team, affect multiple teams (a program risk), or affect other aspects of the business
- PI Planning provides the ART with opportunities to localize and address risks

Addressing program risks

After all plans have been presented, any remaining program risks and impediments are discussed and categorized.

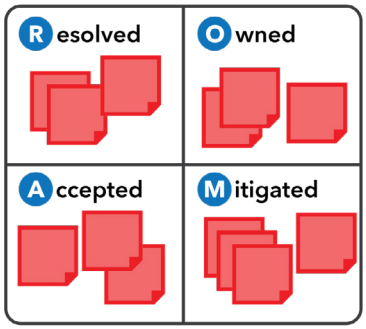
ROAMing risks:

Resolved - Has been addressed. No longer a concern.

Owned - Someone has taken responsibility.

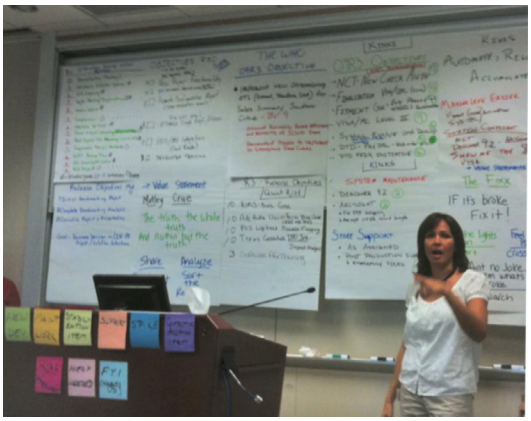
Accepted - Nothing more can be done. If risk occurs, release may be compromised.

Mitigated - Team has a plan to adjust as necessary.



Building the final plan

- All teams review the final plans
- Business Owners are asked whether they accept the plans
- If so, the plan is accepted
- If not, the plans stay in place, and the teams continue planning after the review



A team presenting their final plan

Used with permission from Discount Tire Corporation

Confidence vote: Team and program

After dependencies are resolved and risks are addressed, a confidence vote is taken by the team and program.

A commitment with two parts:

1. Teams agree to do everything in their power to meet the agreed upon objectives
2. If fact patterns dictate that an objective is not achievable, teams agree to escalate immediately so that corrective action can be taken

No confidence	Little confidence	Good confidence	High confidence	Very high confidence

Lesson review

In this lesson, you:

- Identified how to communicate the Vision
- Created PI Objectives
- Organized and managed dependencies
- Analyzed and managed risks

Action Plan: Leading PI Planning

Duration 5 min

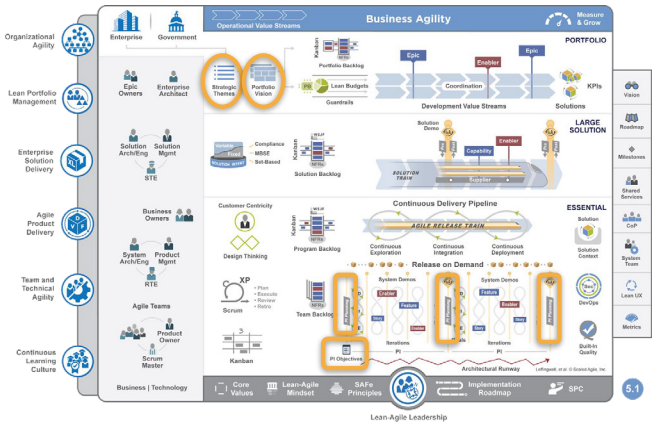
On the Action Plan page in your workbook, answer the following questions:

- What are some improvements you could make as to how you engage during PI Planning?
- List some things you can do to improve your team's ability to manage dependencies during PI Planning.
- What are some ways you can improve how PI Objectives are written and coordinated across the ART?

Articles used in this lesson

Read these Framework articles to learn more about topics covered in this lesson

- PI Planning https://www.scaledagileframework.com/pi-planning/
- Vision https://www.scaledagileframework.com/portfolio-vision/
- Strategic Themes https://www.scaledagileframework.com/strategic-themes/
- PI Objectives https://www.scaledagileframework.com/pi-objectives/



Continue your SAFe journey with the following resources

Watch the 4 Video Playlist Introduction to PI Planning for a quick overview of the PI Planning process https://bit.ly/Playlist-PIPlanning	Download the S.M.A.R.T. Objectives file from the Preparing for PI Planning and the I & A section and use it to write effective PI Objectives https://bit.ly/Community-SMARTObjectivesPDF
Learn how to assign business value to PI Objectives by watching the video Assigning Business Value during PI Planning https://bit.ly/Video-AssigningBVPIPlanning	

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What are some improvements you could make as to how you engage during PI Planning?

List some things you can do to improve your team's ability to manage dependencies during PI Planning.

What are some ways you can improve how PI Objectives are written and coordinate across the ART?

Lesson 3 notes

Enter your notes below. If using a digital workbook, save your PDF often so you don't lose any of your notes.

Lesson 4

Executing Iterations

SAFe® Course - Attending this course gives learners access to the SAFe Product Owner/Product Manager exam and related preparation materials.

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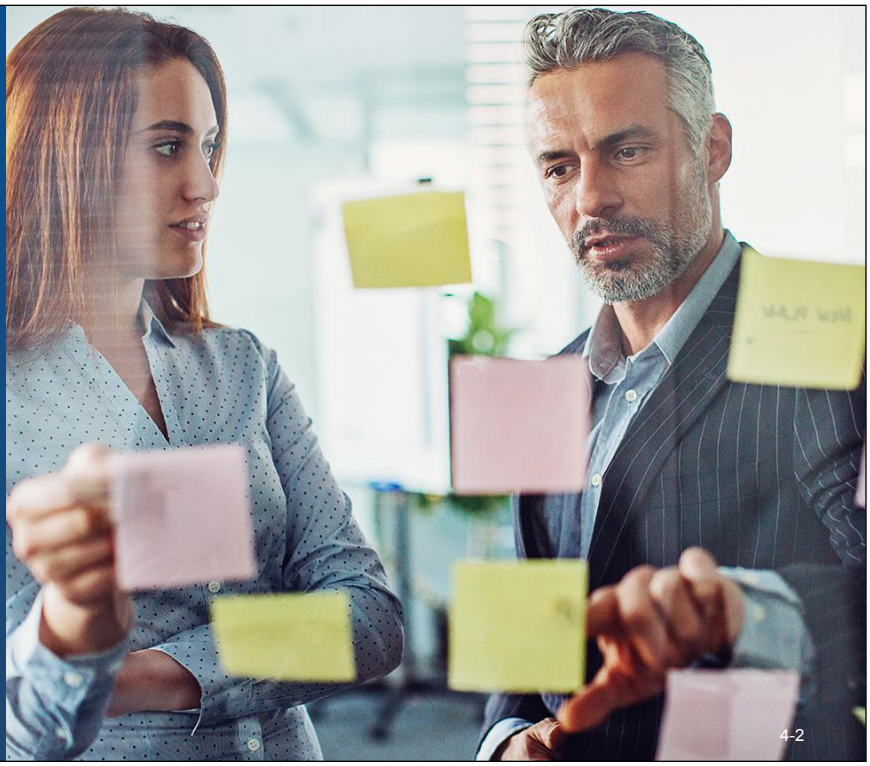
Lesson Topics



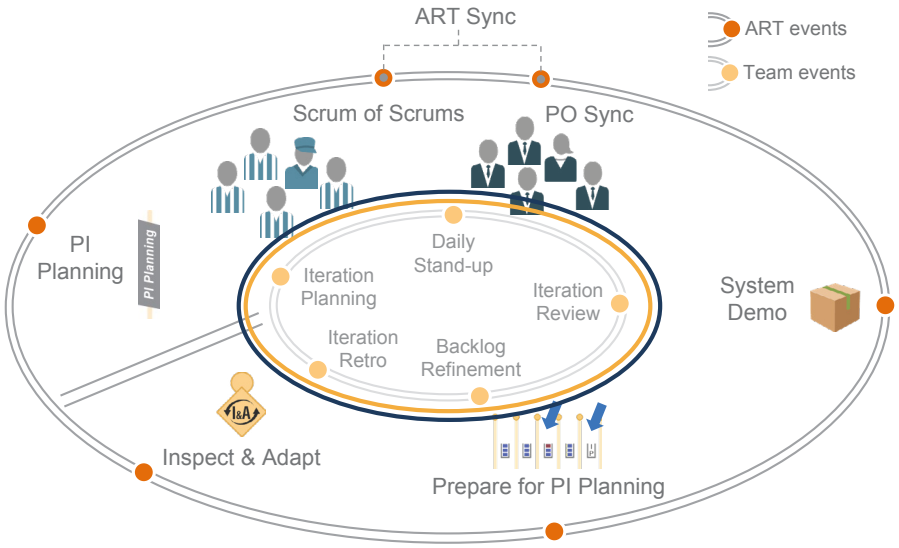
4-2

Learning objectives

At the end of this lesson, you should be able to:

- Apply User Stories
- Identify how to plan an Iteration
- Outline how to manage flow with the Team Kanban
- Summarize how to continuously refine the backlog
- Plan how to participate in the Iteration Review and Iteration Retrospective
- Explain how to support DevOps and Release on Demand

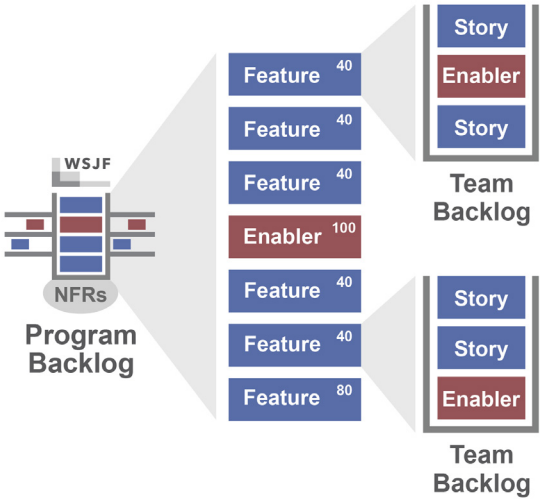
Executing Iterations



4.1 User Stories and Story maps

Features are decomposed into User Stories

- Features are implemented through one or more User Stories
- Features that represent a workflow are captured though Story maps



What are User Stories?

User Stories are short descriptions of a small piece of desired functionality and are sized so that they can be completed in a single Iteration.

- User Stories express desired end-user functionality written in the user's language
- Enabler Stories support exploration, architecture, infrastructure, and compliance
- Stories are created during PI Planning as the teams collaborate with Product Owners and Product Managers

Write User Stories using a standard format

Use the following standard format to write User Stories:

As a (user role), I want (activity) so that (business value).

- User role is the description of the person doing the action
- Activity is what the user can do with the system
- Business value is why the user wants to do the activity

As a Fleet Manager, **I want** a notification before a van needs service **so that** I can balance service requests.

As a Fleet Manager, **I want** detailed service histories **so that** I can identify and track safety recalls and confirm repairs.

Writing good User Stories: The 3 Cs

Card	Conversation	Confirmation
Written on a physical or digital card.	Conversations between the team and the Product Owner provide necessary details.	Acceptance criteria confirms the Story correctness.
As a Fleet Manager, **I want** a notification before a van needs service **so that** I can balance service requests.	*Email or text notifications?* *Text*	• The notification contains the Van ID defined by the Fleet Manager • The notification is delivered on a schedule determined by the Fleet Manager

INVEST in a good User Story

- Write User Stories that can be developed separately
- Write User Stories in which scope can be negotiated
- Write User Stories that are valuable to the Customer
- Write User Stories that can be estimated
- Write User Stories that can fit in an Iteration
- Write User Stories that are testable

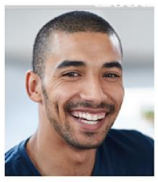
User Stories strive to convey an amount of detail that's just right

Insufficient detail	Just right	Overly constrained
As a Fleet Manager, **I want** to search for vans **so that** I can find the van I want.	**As a** Fleet Manager, **I want** to search my fleet **so that** I can find the vans that need a safety recall.	**As a** Fleet Manager, **I want** to search for a van by its Vehicle Identification Number, locator, or driver **so that** I can find the van I want.

Relating Features and Stories to personas improves design

Feature: Safety recall management
Fleet Managers seek to maintain the safety of their vehicles by ensuring that all safety updates are applied to their vans.

Benefits:
- Increased driver safety
- Reduced liability
- Increased compliance



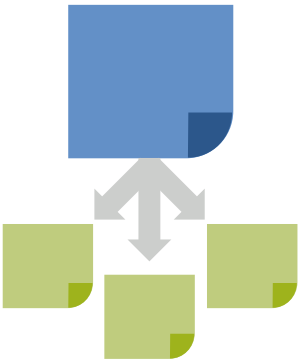
Mike the Fleet Manager

Age: 36
Location: Reno, Nevada, USA
Manages: 50 vans, 80 part-time and full-time drivers

Story: As a Fleet Manager, I want to search my fleet so that I can find the vans that need maintenance. Vans that are overdue or need a safety recall are highlighted.

Story: As a Fleet Manager, I want to review safety recalls so that I can prioritize the maintenance schedules of my fleet.

Ten patterns for decomposing Features into User Stories



1. Workflow steps
2. Business rule variations
3. Major effort
4. Simple/complex
5. Variations in data
6. Data methods
7. Defer system qualities
8. Operations
9. Use case scenarios
10. Break out a spike

Activity: Decompose Features into User Stories

Duration 10 min

- **Step 1:** With your group, select one Feature you defined and decompose it into User Stories.
- **Step 2:** Write these User Stories in the User Story format:
  - **As a (user role), I want (activity) so that (business value).**

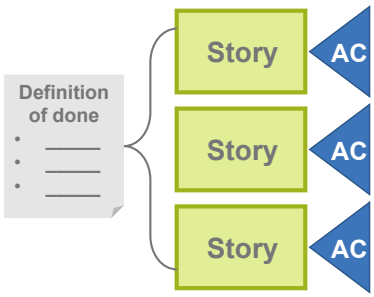
When is a User Story complete?

A User Story is complete when it:

- Satisfies the definition of done
- Is accepted by the Product Owner

The definition of done provides a common criteria for all backlog items.

Teams create and adhere to the definition of done



The Product Owner reviews the acceptance criteria and accepts Stories.

User Stories have acceptance criteria

- Acceptance criteria provide the details of the User Story from a testing point of view
- Acceptance criteria are created by the team and the Product Owner as User Stories are refined

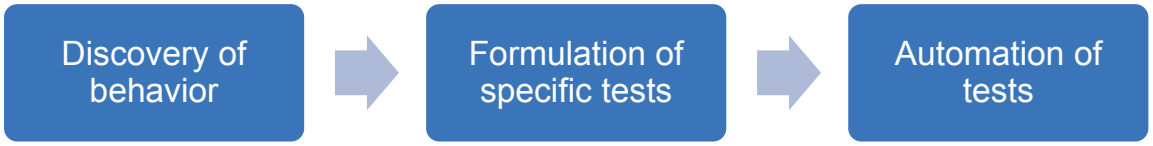
As a Fleet Manager, I want a notification before a van needs service so that I can balance service requests

Refined

Story:
As a Fleet Manager, I want a notification before a van needs service so that I can balance service requests
Acceptance criteria:
- The notification contains the Van ID defined by the Fleet Manager
- The notification is delivered on a schedule determined by the Fleet Manager

Write acceptance criteria using behavior-driven development (BDD)

- Behavior is often first described in general terms, which can be ambiguous
- Specific examples of behavior provide a better understanding
- Specific examples can directly become tests or can lead to specific behaviors, which then are transformed into tests



When written as BDD, acceptance criteria can serve as tests

- Acceptance criteria for a scenario
  - More generic, like an outline

```
Given a van associated with a maintenance schedule
When the van is due for a maintenance activity
Then a notification is sent to the designated user
```

- Example of scenario that can be an acceptance test
  - Specific pass or fail, and may uncover additional details that are required for acceptance

```
Given a van and an oil maintenance schedule ●------ ------- ----- Setup
When the van is due for an oil change in the next month ●------ Event
Then a text message is sent to the Fleet Manager ●-------- Outcome/Test
```

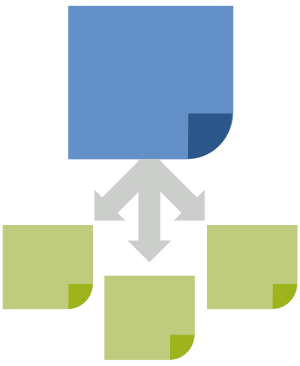
Activity: Write acceptance criteria

Prepare 10 min | Share 10 min

- **Step 1:** With your group, write acceptance criteria in the Given-When-Then format for three User Stories you have created.
- **Step 2:** Make sure the acceptance criteria are testable.
- **Step 3:** Discuss with your group:
  - Did writing acceptance criteria in the Given-When-Then format identify the need for any additional details?

Split Stories that are too big to fit into an Iteration

Stories are split using the same techniques as decomposing Features



1. Workflow steps
2. Business rule variations
3. Major effort
4. Simple/complex
5. Variations in data

1. Data methods
2. Defer system qualities
3. Operations
4. Use case scenarios
5. Break out a spike

Activity: Split User Stories

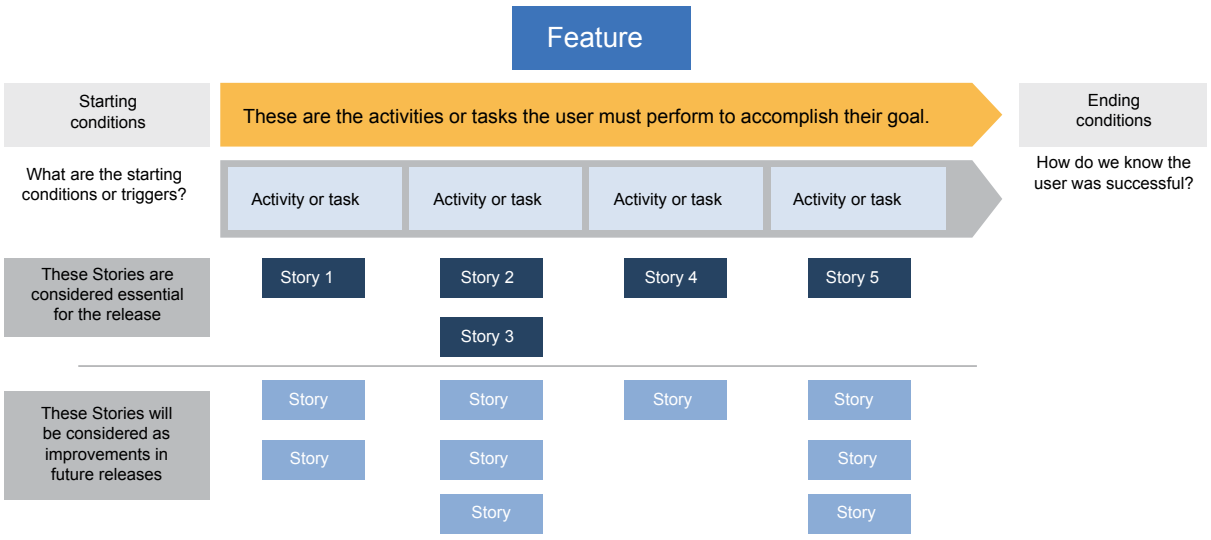
Prepare 10 min | Share 10 min

- **Step 1:** Choose a User Story from the ones you created that may not fit into an Iteration. Working with your group, split the User Story.
- **Step 2:** How can you ensure that split User Stories provide end-user value?

Use Story maps to capture workflows

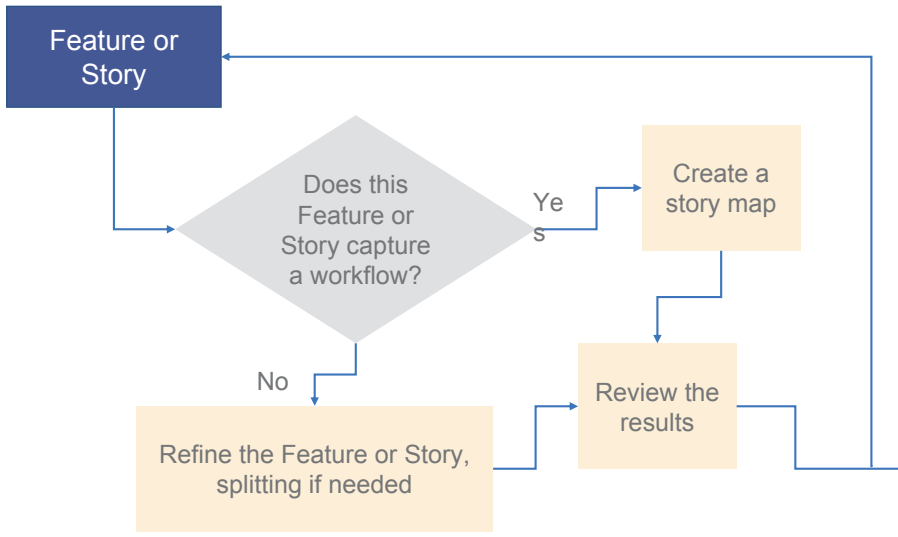
- A Story map is a design thinking tool that captures the workflow of a user and the User Stories that support the workflow
- Story maps help teams:
  - Design workflows
  - Manage the improvement of the product over time by showing how successive Stories can improve the Solution
  - Validate that the Stories in the backlog support all the steps needed by the user to accomplish the objective

Structuring your Story map



Stories within an activity are typically prioritized from “Stories essential to complete the activity” to “Stories that delight the user."

When should you use a Story map?



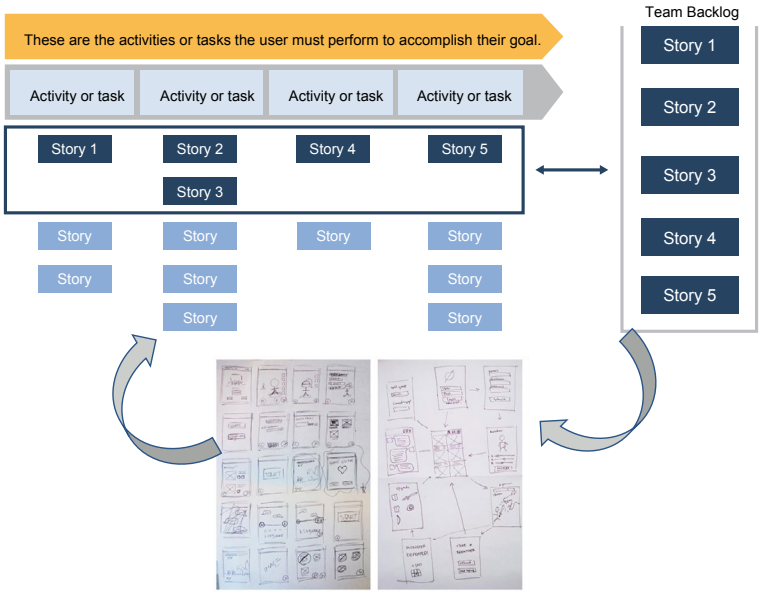
New Features are added to the Program backlog.

New Stories added to the Team backlog and the process repeats.

Stories are prioritized and added to Team Backlogs.

Integrating user experience and interface design

- Story maps support user experience and interface design in creating design prototypes
- Design prototypes provide fast feedback and help further refine Features and Stories



Activity: Develop a Story map

Prepare 10 min Share 10 min

- **Step 1**: With your group, create a Story map for this Feature. Think about:
  - What are the main tasks?
  - What are minimum number of Stories required to complete the Feature?

Be prepared to share with the class.

Insurance product catalog

Benefit hypothesis:
Allows user to purchase extra insurance for an existing delivery order

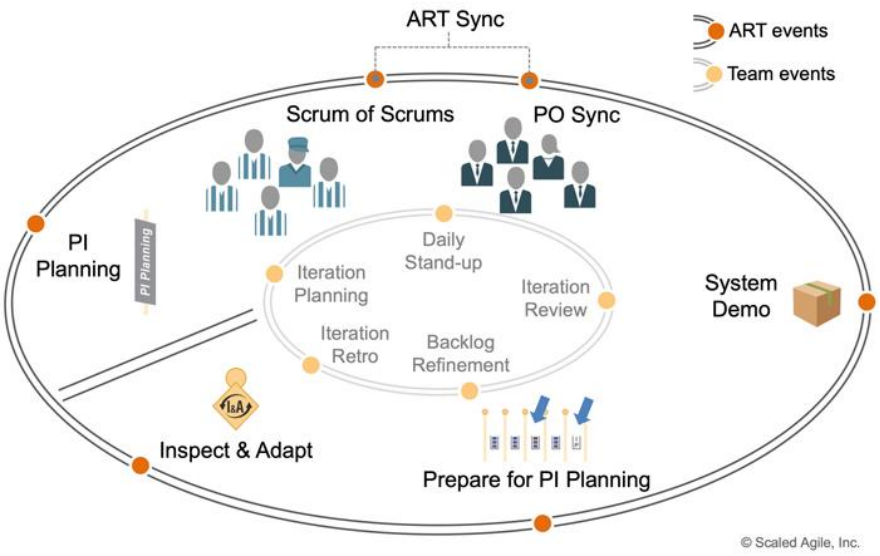
Acceptance criteria:
- Access insurance catalog from account profile
- Display available insurance options
- Integrate with shopping cart
- Process payment

4.2 Iteration Planning

Iterations are the basic building blocks of Agile development

Product Owner

Product Owners participate in all team events.



Iterations are time-boxed events

Here is an example of events in an Iteration that starts on a Wednesday.

Monday	Tuesday	Wednesday	Thursday	Friday
		Iteration Planning	DSU	DSU
DSU	DSU and backlog refinement	DSU	DSU	DSU
DSU and Iteration Review	Iteration Retrospective			

Functionality is demonstrated throughout and can be released at any time as market needs warrant.

Video: The Product Owner and Iteration Planning

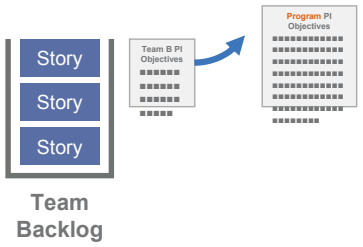
Duration 5 min

http://bit.ly/POIterationPlanning

Product Owners lead Iteration Planning

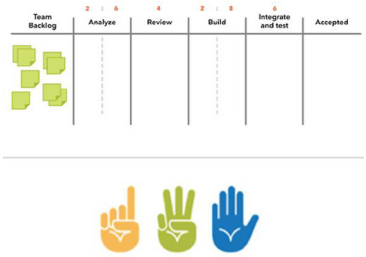
Iteration Planning refines the Iteration plans created during PI Planning

Iteration Planning Preparation → **Iteration Planning** → **Iteration Planning Outputs**



Prioritized backlog and Team PI Objectives

Confirm objectives, estimate and detail Stories, develop goals

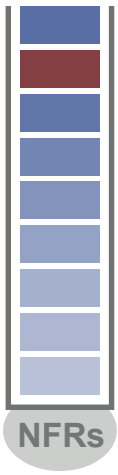


Committed goals, committed backlog

4-31

The Product Owner ensures the Team Backlog captures all the work

1. **Program Backlog**
2. **Team context**
   - Refactors
   - Maintenance
   - Other technical debt
3. **Other stakeholders**
   - Other team dependencies
   - Other commitments
   - Spikes/research



Fine-grained, detailed Stories, well-understood, ready for implementation

Stories can be added, modified, removed, or reprioritized

Course-grained Stories, less detailed and understood, continuously refined

Nonfunctional requirements (NFRs) are a constraint on the backlog

4-32

Sequencing User Stories

- Primary economic prioritization happens in the Program Backlog. Agile Teams sequence work for efficient execution of business priorities.
- The Product Owner and the team sequence work based on:
  - Story priorities inherited from Program Backlog priorities
  - Events, Milestones, releases, and other commitments made during PI Planning
  - Dependencies with other teams
  - Local priorities
  - Capacity allocations for defects, maintenance, and refactors
- Initial sequencing happens during PI Planning
- Adjustments happen at Iteration boundaries

Iteration Planning flow

Iteration Planning

- Timebox: four hours or less
- This meeting is by and for the team
- SMEs may attend as required

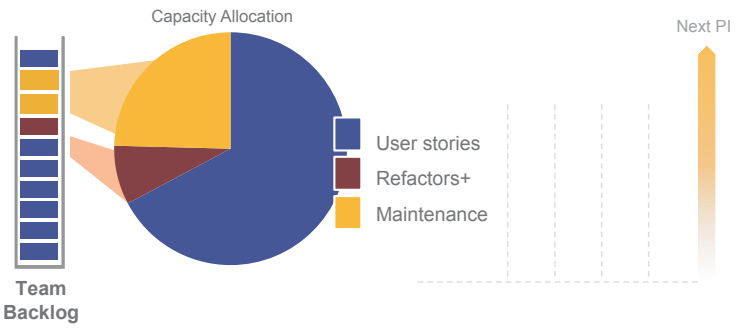
1. Establishing capacity
2. Story analysis and estimating
3. Detailing Stories
4. Developing Iteration goals
5. Committing to Iteration goals

Establishing capacity

- Team applies capacity allocation to the Team Backlog
- Team quantifies capacity to perform work in the upcoming Iteration
- Each team member determines their availability, acknowledging time off and other potential duties
- The Product Owner, in collaboration with the team, selects the highest priority backlog items for each slice of the capacity allocation to implement in an Iteration

Capacity allocation for a healthy balance

- By having capacity allocation defined, the Product Owner doesn't need to prioritize unlike things against each other
- Once the capacity allocation is set, the Product Owner and team can prioritize like things against each other



Capacity allocation

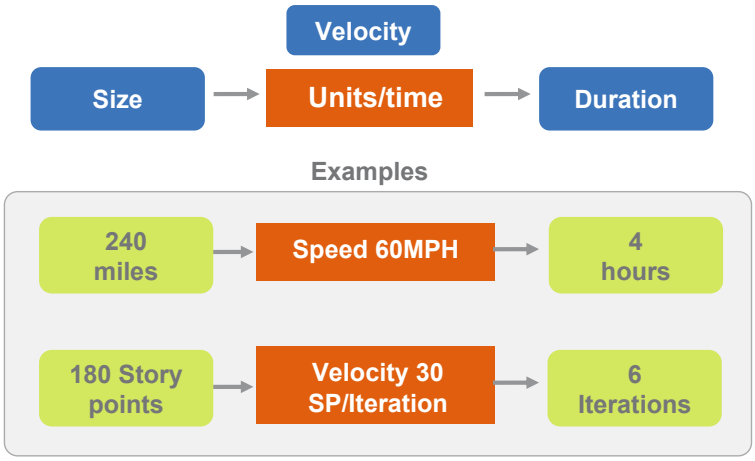
- Helps alleviate velocity degradation due to technical debt
- Keeps existing customers happy with bug fixes and enhancements
- Can change at Iteration or PI boundaries

Using velocity to establish capacity

Establish velocity by looking at the average output of the last Iterations.

Definition of Velocity

Velocity is the number of Story points accepted in an Iteration. Always use the average velocity for the most recent Iterations.



4-37

Establishing capacity before historical data exists

- For every full-time developer and tester on the team, give the team 8 points (adjust for part-timers)
- Subtract 1 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, and call it a 1
- Estimate every other Story relative to that one
- Never look back (don't worry about recalibrating)

Example: Assuming a 7-person team composed of 3 developers, 2 testers, 1 Product Owner, and 1 Scrum Master, with no vacation, and a 2-week iteration.

Exclude Scrum Master and Product Owner from the calculation.

Estimated capacity = 5 x 8 points = 40 points/Iteration.

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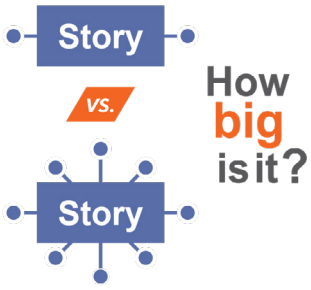
Story analysis and estimation

- The Product Owner presents Stories in order of priority
- Each Story
  - Is discussed and analyzed by the team
  - Has its acceptance criteria refined
  - Is estimated
- The process continues until the estimation of the Stories has reached the capacity of the team

Estimate Stories with relative Story points

Compared with other Stories, an 8-point Story should take relatively four times longer than a 2-point Story.

- A Story point is a singular number that represents:
  - Volume: How much is there?
  - Complexity: How difficult is it?
  - Knowledge: What do we know?
  - Uncertainty: What's not known?
- Story points are relative and not connected to any specific unit of measure.



Apply estimating poker for fast, relative estimating

- Estimating poker combines expert opinion, analogy, and debate for quick but reliable estimates
- All team members participate but Product Owners and Scrum Masters do not estimate
- Estimates provided by anyone outside the team that performs the work will negate the benefits of this exercise

?	1	2	3	5	8	13	20	40	100	∞

Estimation is a whole team exercise

- Increases accuracy by including all perspectives
- Builds understanding
- Creates shared commitment

Steps involved in estimating poker

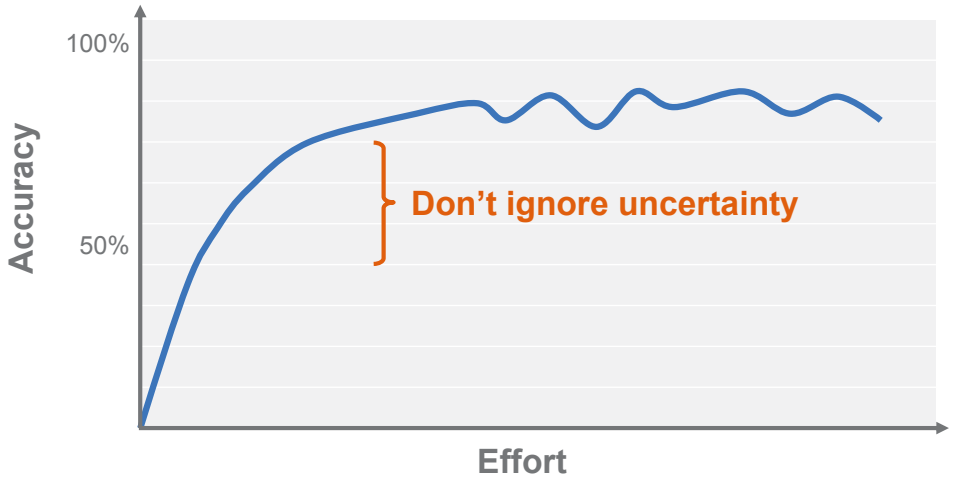
	Estimating poker steps
1	Estimators receive cards
2	The team reviews the Story
3	Estimators privately select a card representing their estimate
4	Estimators reveal their cards simultaneously
5	The team discusses the differences
6	Estimators re-estimate if necessary to come to a consensus

Adapted from Agile Estimating and Planning – Cohn, Mike

Note: estimating poker is a form of the **Wideband Delphi** estimation method, a consensus-based technique for estimating effort.

How much time to spend estimating

A little effort helps a lot. A lot of effort only helps a little.

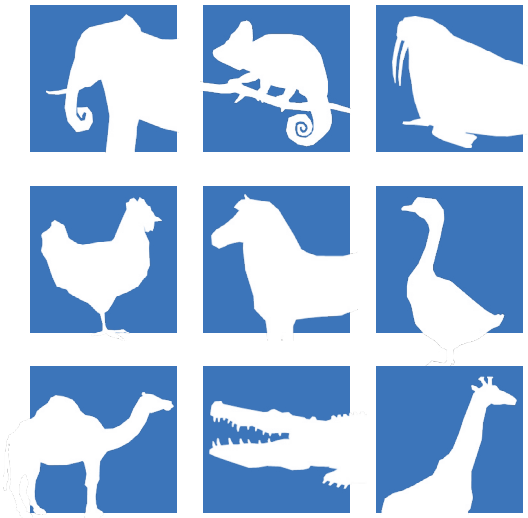


Activity: Relative size estimating

Prepare 10 min | Share 5 min

Use this activity to practice estimating Stories by relative size.

- **Step 1:** In your groups, estimate the relative size of each animal using Story points: 1, 2, 3, 5, 8, 13, 20, 40, 100, ? or ∞. You will not use all values and can use the same value more than once.
- **Step 2:** Share your group's process and rationale for how you estimated.



4-45

Iteration goals

Iteration goals provide clarity, commitment, and management information. They serve three purposes.

- Align team members to a common purpose
- Align teams to common Program Increment (PI) Objectives and manage dependencies
- Provide transparency and management information

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Iteration goals: Examples

Software Example

Iteration Goals
1. Finalize and push last name search and first name morphology
2. Index 80% of remaining data
3. Other Stories: • Establish search replication and validation protocol • Refactor artifact dictionary schema

Business Example

Iteration Goals
1. Roll out the GDPR incident report procedures
2. Prepare for external audit
3. Obtain approvals for financial report

Commit to the Iteration goals

Team commitments are not just to the work. Team members are committed to other teams, the program, and the stakeholders.

A team meets its commitment:

By doing everything they said they would do.
If the commitment is not feasible, they must immediately raise the concern.

Commitment

Too much holding to a commitment can lead to burnout, inflexibility, and quality problems.

Adaptability

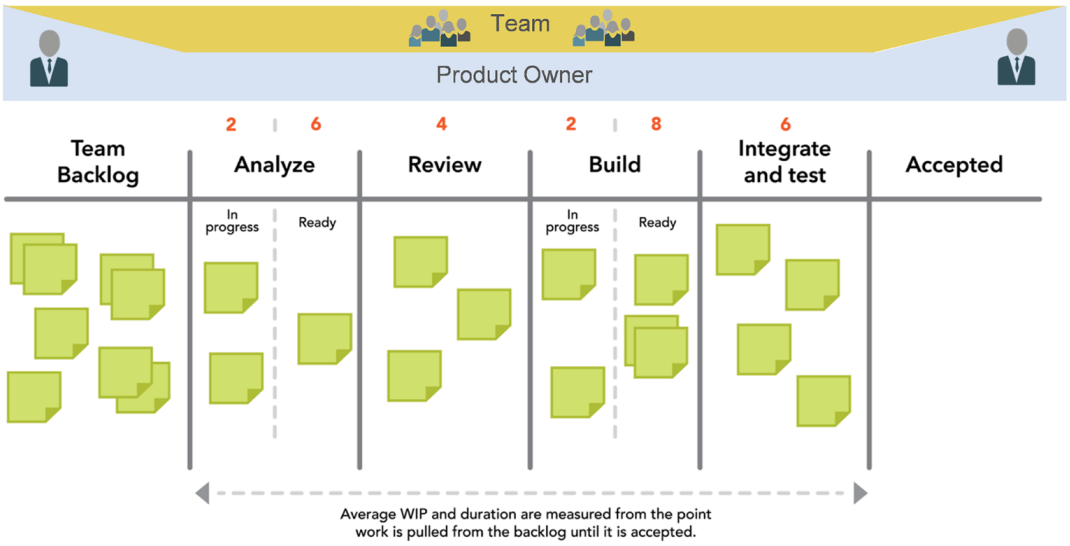
Too little commitment can lead to unpredictability and lack of focus on results.

Tips for effective Iteration planning

Best approaches	Common anti-patterns
Review and reprioritize the team backlog ahead of iteration planning	Delving too deep into technical discussions
Clearly communicate Story details and priorities to ensure understanding and alignment	Prioritized Stories don't align to the business objectives or the team's PI Objectives
Maintain neutrality as to not influence the team to over commit	Bringing Stories that haven't been refined and prioritized
Prior to Iteration Planning, prepare some preliminary Iteration Goals based on the team's progress in the PI so far	Product Owner directs the team on how the work should be done
Apply capacity allocation to the team backlog to make prioritizing unlike work easier	The team under commits due to fear of failure
	No time is reserved for support activities

4.3 The Team Kanban

The Team Kanban promotes collaboration and facilitates flow



Video: The Product Owner and the Daily Stand-Up

Duration 5 min

http://bit.ly/PO_DSU

Product Owners and the daily stand-up (DSU)

- As members of the Agile Team, Product Owners should attend the DSU
- Product Owners should listen carefully to any impediments that they can resolve immediately during the meet after
- Product Owners should be ready to clarify Story intent and acceptance criteria
- Product Owners sometimes unintentionally interfere with the DSU, so don't feel bad if your Scrum Master provides helpful advice
- Product Owners should be attentive for opportunities to release value or engage stakeholders based on the team's progress

Discussion: Product Owner's role in the DSU

Duration

In your work as a Product Owner for TTC, you often attend trade shows and industry conferences to support your sales and marketing team, identify industry trends, and assess competitive offerings. You know that you will be gone for two weeks attending a trade show and visiting a few key Customers.

How should you and the team handle your absence in the DSU?

4.4 Backlog refinement

Video: The role of the PO in the team Backlog Refinement

Duration 5 min

http://bit.ly/POBacklogRefinement

The backlog refinement workshop

The backlog refinement workshop is a preview and elaboration of upcoming Stories.

- Helps the team think about new Stories prior to Iteration Planning
- Provides enough time to identify and resolve dependencies and issues that could impact the next Iteration
- The team can improve Stories, add acceptance criteria, and identify missing information
- Most of the focus is on the next Iteration, but it allows time to discuss future Iterations and even Features for the next PI

Tips for more effective backlog refinement

Best approaches	Common anti-patterns
Revisit Stories as many times as needed to finalize and commit to them in Iteration Planning	Arriving to the Iteration with Stories that are not ready
Maintain the right level of a deep backlog versus ready backlog for two Iterations	Not doing the backlog refinement consistently
Make sure all team members participate	Team sees Stories for the first-time during Iteration or PI Planning
Invite the right subject matter experts	Feature estimations impact Story estimation
Hold the event at regular intervals	

4.5 Iteration Review and Iteration Retrospective

Video: The Product Owner and the Iteration Review

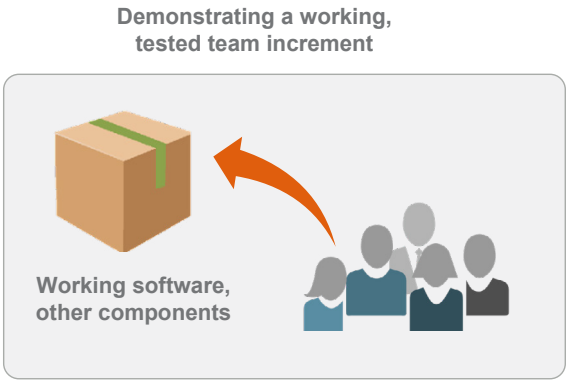
Duration 5 min

http://bit.ly/POIterationReview

The Iteration Review

- The Iteration Review provides the true measure of progress by showing working software functionality, hardware components, and so on.
- Preparation for the review starts with planning
- Teams demonstrate every Story, spike*, refactor, and NFR
- Attendees are the team and its stakeholders

*Spike is a research Story, considered an exploration style Enabler



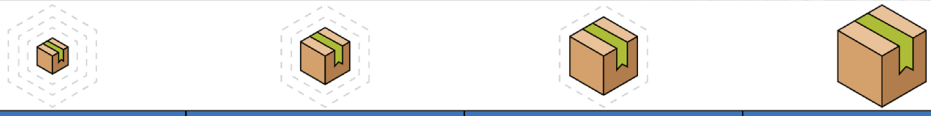
Iteration Review guidelines

- **Timebox:** 1 to 2 hours.
- **Preparation:** Review preparation should be limited to 1 to 2 hours. Minimize presentation. Work from the repository of Stories.
- **Attendees:** If a major stakeholder cannot attend, the Product Owner should follow up individually.

Sample Iteration Review Agenda

1. Review business context and Iteration Goals
2. Demo and solicit feedback of each Story, spike, refactor, and NFR
3. Discuss Stories not completed and why
4. Identify risks, impediments
5. Revise team backlog and Team PI Objectives as needed

Scalable definition of done



Team Increment	System Increment	Solution Increment	Release
• Stories satisfy acceptance criteria • Acceptance tests passed (automated where practical) • Unit and component tests coded, passed, and included in the BVT • Cumulative unit tests passed • Assets are under version control • Engineering standards followed • NFRs met • No must-fix defects • Stories accepted by Product Owner	• Stories completed by all teams in the ART and integrated • Completed features meet acceptance criteria • NFRs met • No must-fix defects • Verification and validation of key scenarios • Included in build definition and deployment process • Increment demonstrated, feedback achieved • Accepted by Product Management	• Capabilities completed by all trains and meet acceptance criteria • Deployed/installed in the staging environment • NFRs met • System end-to-end integration verification, and validation done • No must-fix defects • Included in build definition and deployment/transition process • Documentation updated • Solution demonstrated, feedback achieved • Accepted by Solution Management	• All capabilities done and meet acceptance criteria • End-to-end integration and solution V&V done • Regression testing done • NFRs met • No must-fix defects • Release documentation complete • All standards met • Approved by Solution and Release Management

4-63

What to do when a User Story isn't done

- **Split it?** "Now that I see the Story, I've realized that I only really need part of it. The rest is a new Story that we can work on later."
- **Continue it?** "I still need this Story, and it's still my top priority. Can we finish this Story in the next iteration?"
- **Delay it?** "This Story is important to me, but we've discovered it's huge. I'd prefer that we focus on other Stories with better ROI."
- **Abandon it?** "If the Story is this difficult to develop, it's not worth it for me anymore. The Story is too expensive to develop relative to the value."

Note: If a team is frequently ending an Iteration with incomplete Stories, consider imposing stricter WIP limits on the Team Kanban.

SCALED AGILE

4-64

Update Metrics during Iteration Review to track progress

Functionality	Iteration 1	Iteration 2
# Stories (loaded at beginning of Iteration)		
# accepted Stories (defined, built, tested, and accepted)		
# not accepted (not achieved within the Iteration)		
# pushed to next Iteration (rescheduled in next Iteration)		
# not accepted: deferred or later date		
# not accepted: deleted from backlog		
# added (during Iteration; should typically be 0)		

Quality and test automation
% source code with test available/test automated
Defect count at start of Iteration
Defect count at end of Iteration
new test cases
new test cases automated
new manual test cases
Total automated tests
Total manual tests
% tests automated
Unit test coverage percentage

Relentless improvement

Agile Teams continuously adapt to new circumstances and improve the methods of value delivery

- Understand where you are
- Foster the culture of improving everywhere
- Use retrospectives as summary points but not as limitations
- Support continuous learning
- Actively engage with the Scrum Masters to drive improvement on the ART

Video: The Product Owner and Iteration Retrospective

Duration: 4 min

http://bit.ly/POIterationRetro

Improving everywhere

Ask questions to reflect and address every area that surfaces as a constraint to the team's performance.

Examples
Move from manual to automated testing
Communicate with remote teams, subject matter experts, and so on
Consider the team's skill set
Prepare and run the demo
Include nonfunctional requirements (NFR) testing
Provide more efficient and disciplined design sessions

Iteration Retrospective

- **Timebox:** 30 to 60 minutes
- **Purpose:** Pick one or two items that can be done better for next Iteration
- **Outcome:** Enter improvement items into the Team Backlog

Sample Agenda

Part 1: Quantitative

1. Review the improvement backlog items targeted for this Iteration. Were they all accomplished?
2. Did the team meet the goals (yes/no)?
3. Collect and review the agreed-to Iteration print metrics.

Part 2: Qualitative

1. What went well?
2. What didn't?
3. What can we do better next time?

4.6 DevOps and Release on Demand

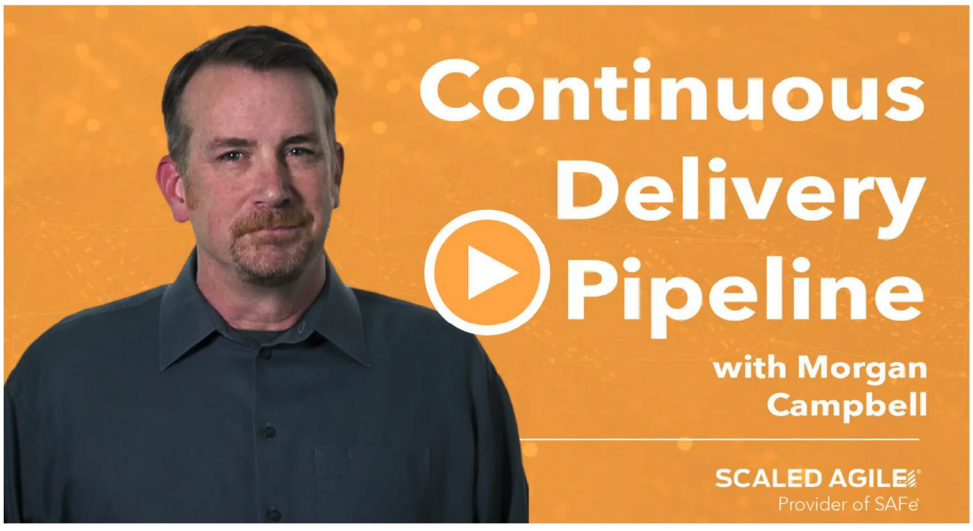
Video: What is DevOps?

Duration 2 min

http://bit.ly/WhatisDevops

Video: The Continuous Delivery Pipeline

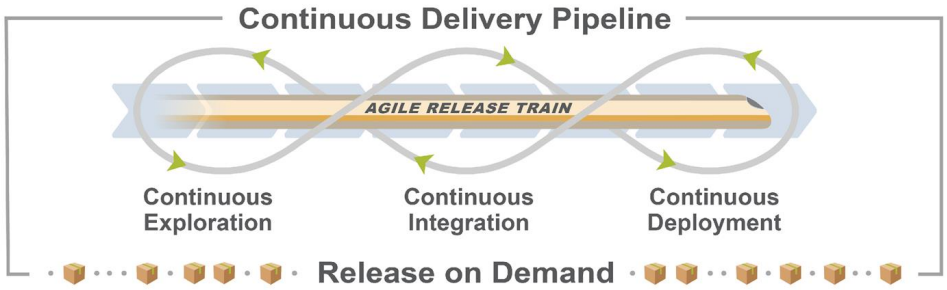
Duration 5 min



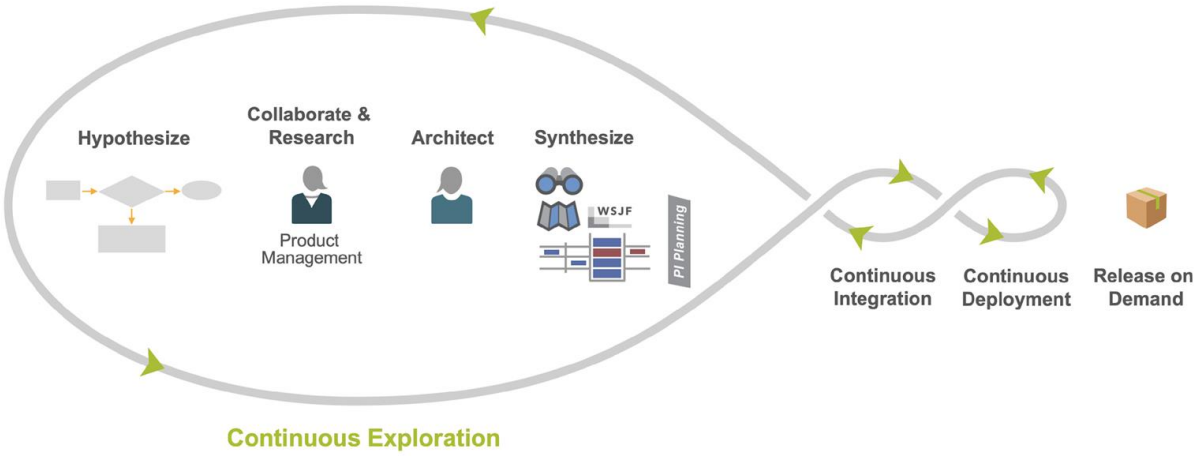
http://bit.ly/SAFeCDP

Building the Continuous Delivery Pipeline with DevOps

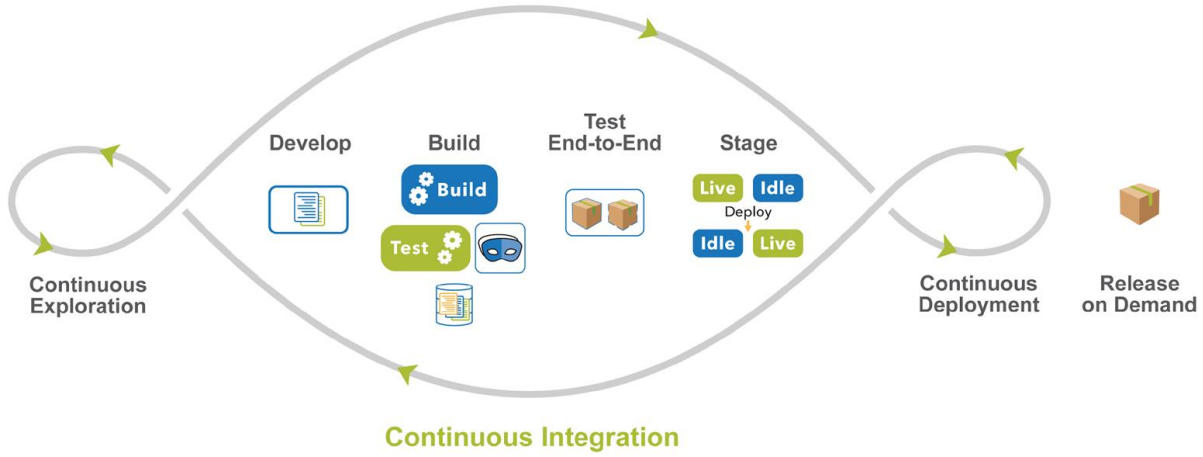
- The Continuous Delivery Pipeline (CDP) represents the workflows, activities, and automation needed to deliver new functionality more frequently.
- Each ART builds and maintains, or shares, a pipeline.
- Organizations map their current pipeline into this new structure, remove delays, and improve the efficiency of each step.



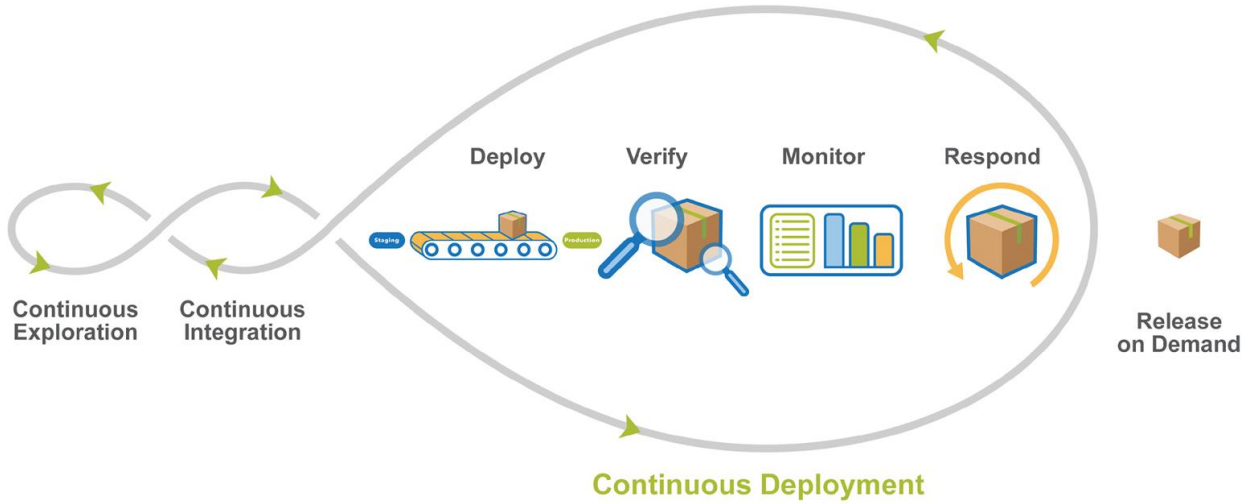
Continuous Exploration – Understand Customer needs



Continuous Integration – A critical technical practice of the ART

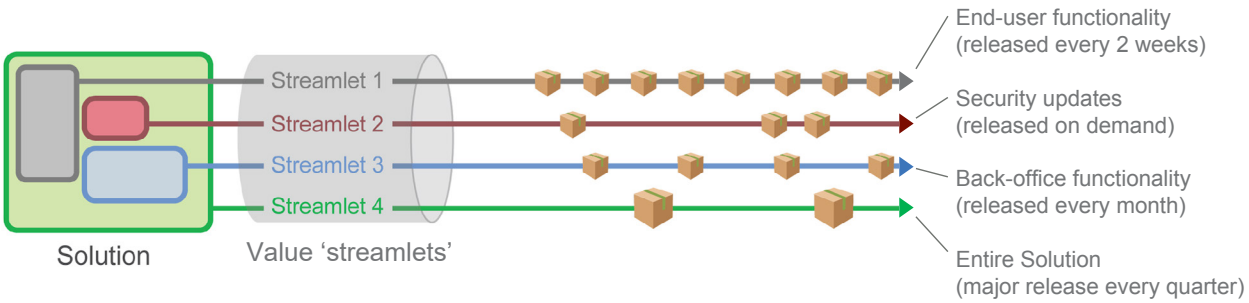


Continuous Deployment – Getting to production early



Release on Demand – Making value available when it's needed

Decouple release elements from the total Solution



Discussion: How can you support the CDP?

Duration 10 min

- The TTC Van Maintenance Advisor is a complex Solution. It includes components that operate in the van, a web application, and a smart phone application.
- Should all components be released at the same time? If not, why not?

Lesson review

In this lesson, you:

- Applied User Stories
- Identified how to plan an Iteration
- Outlined how to manage flow with the Team Kanban
- Summarized how to continuously refine the backlog
- Planned how to participate in the Iteration Review and Iteration Retrospective
- Explained how to support DevOps and Release on Demand

Action Plan: Executing Iterations

Duration 5 min

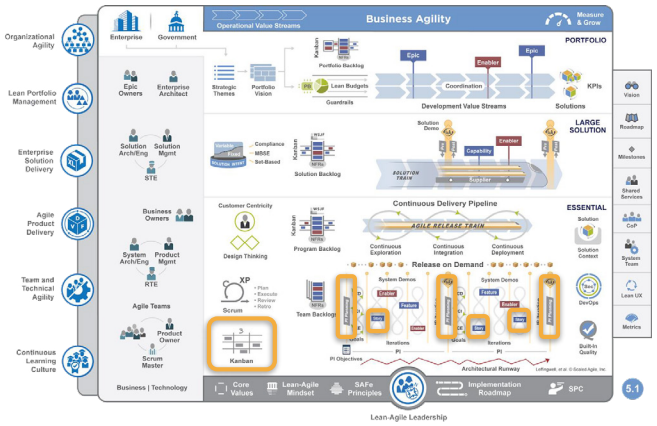
On the Action Plan page in your workbook, answer the following questions:

- What are two specific actions you can take to improve how you create and manage User Stories?
- Where might you be able to apply Story maps?
- How can you improve your participation in all the Iteration events?

Articles used in this lesson

Read these Framework articles to learn more about topics covered in this lesson

- Iteration Planning https://www.scaledagileframework.com/iteration-planning/
- Iterations https://www.scaledagileframework.com/iterations/
- User Stories https://www.scaledagileframework.com/story/
- Team Kanban https://www.scaledagileframework.com/team-kanban/



Continue your SAFe journey with the following resources

Use this Collaborate tool to help you create & refine Stories. https://bit.ly/Template-StoryRefining	Use this Collaborate tool to guide you in splitting large Stories and then refining each smaller Story. https://bit.ly/Template-StorySplitting
Use this Story Mapping Collaborate tool to organize a sequence of stories according to the tasks you need to accomplish their goal. https://bit.ly/Template-StoryMapping	Watch this playlist on Story writing to introduce you to Stories and writing effective Stories. https://bit.ly/Playlist-Stories

Lesson 4: Executing Iterations

What are two specific actions you can take to improve how you create and manage User Stories?

Where might you be able to apply Story Maps?

How can you improve your participation in all the Iteration events?

Lesson 4 notes

Enter your notes below. If using a digital workbook, save your PDF often so you don't lose any of your notes.

Lesson 5

Executing the PI

SAFe® Course: Attending this course gives learners access to the SAFe Product Owner/Product Manager exam and related preparation materials.

POPM SAFe 5

SCALED AGILE®

Lesson Topics

5.1 The Product Owner (PO) sync

5.2 The System Demo

5.3 The Innovation and Planning Iteration

5.4 Inspect and Adapt

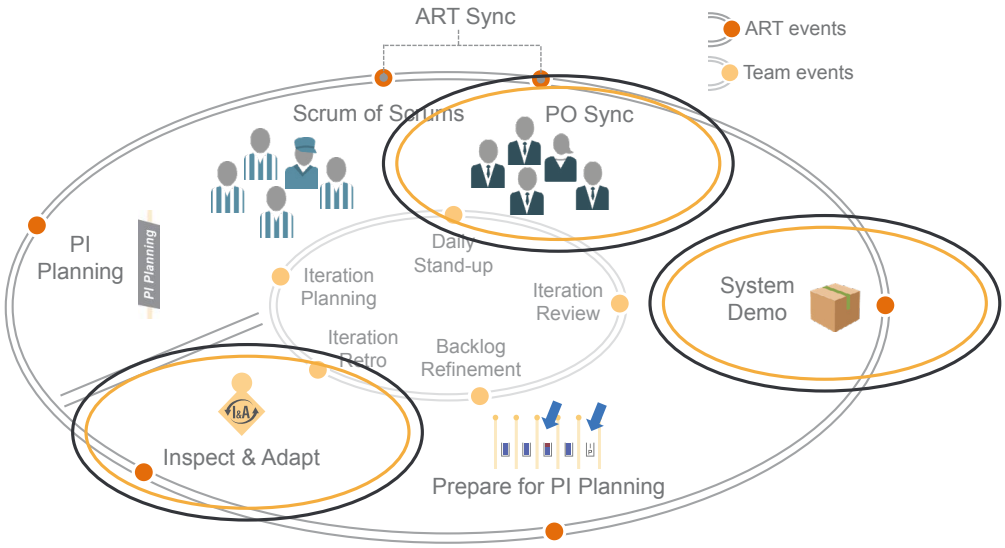
5-2

Learning objectives

At the end of this lesson, you should be able to:

- Define how to participate in the PO Sync
- Plan how to participate in the System Demo
- Explain how to innovate throughout the PI
- Summarize how to Inspect and Adapt

Executing the PI



5.1 The PO Sync

The PO sync helps ARTs respond to change

- The PO sync provides visibility into how well the ART is progressing toward meeting the program PI Objectives
- It provides an opportunity to assess any scope adjustments
- It is facilitated by the RTE or Product Management
- Participants are Product Managers, Product Owners, other stakeholders, and SMEs, as necessary
- It occurs weekly or more frequently, and is 30 – 60 minutes
- Product Owners communicate adjustments to their teams after the sync

Discussion: Enabling alignment across the ART with sync meetings

Duration 10 min

- Think about the various sync meetings that are part of SAFe (daily stand-up, scrum of scrums, PO sync, ART sync, Architect sync).
- How can you leverage these sync meetings as a Product Owner or Product Manager to ensure alignment across the ART? What issues and opportunities might you bring up? What potential solutions might you offer to resolve the issues and follow through with opportunities?

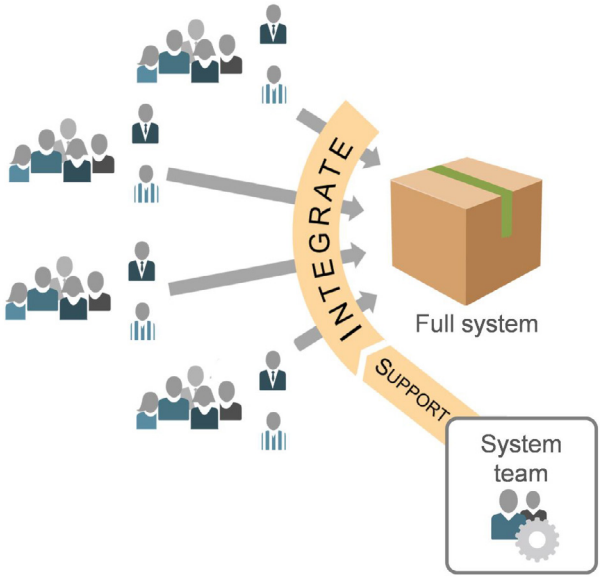
5-7

5.2 The System Demo

5-8

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
- Demos occur after the Iteration Review (may lag by as much as one Iteration maximum)
- Demo from a staging environment that resembles production as much as possible



Recommended System Demo agenda

5 min:	Briefly review the business context and the PI Objectives
5 min:	Briefly describe each new Feature before running the demo
25 min:	Demo each Feature Frame each Feature in the context of how a Customer or persona will gain benefit from this Feature or how the Feature will create business value
15 min:	Identify current risks and impediments
10 min:	Open discussion of questions and feedback, summarized progress

Apply the meet-after pattern to keep the System Demo focused.

Tips for effective System Demos

Best approaches	Common anti-patterns
Begin to consider how and what to demo in Iteration Planning	A lot of time is spent preparing for the demo
Make sure the right participants are present	Demo is mainly talk/slides as opposed to working software and/or hardware
Ensure that the team celebrates its accomplishments and that stakeholders acknowledge them	POs and PMs see things for the first time in the System Demo
Make sure different team members have the opportunity to demo	System Demo is not done because “the Team Demo is enough”
Ensure that the team is ready for the System Demo and coordinates with the System Team	Team members are not invited to the System Demo to save time
	Demos are not interesting or relevant to Program-level stakeholders
	Using test data

5-11

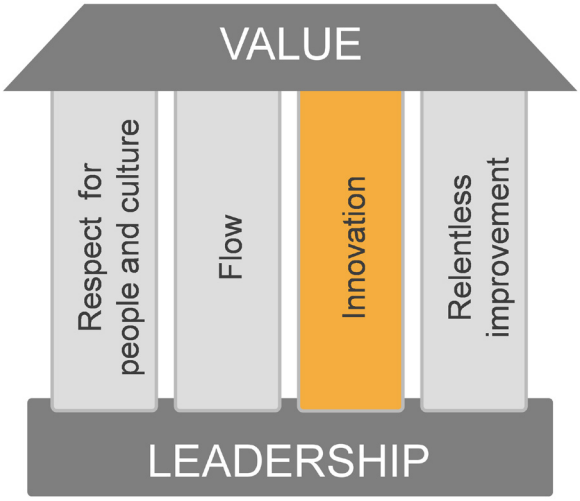
5.3 The Innovation and Planning Iteration

5-12

Innovation is part of the Lean-Agile Mindset

Innovation is one of the four pillars of SAFe's House of Lean

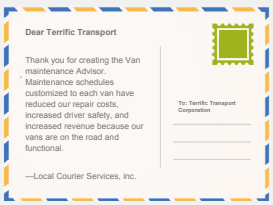
- Customers want the next thing that will improve their lives, but they may not know what that is
- Producers innovate; Customers validate
- Create time for innovation, exploration, and creativity
- Avoid succumbing to the tyranny of the urgent
- Enable education and learning



Innovative ideas come from many sources

Internal sources

Agile Teams



- Aspirational, yet realistic and achievable
- Motivational enough to engage others on the journey
- **Result:** The teams start thinking about how to apply their strengths in order to get there.

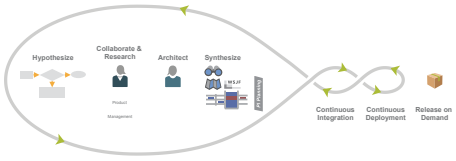
Switch: How to Change Things When Change is Hard, Heath and Heath, Broadway Books, 2010

External sources

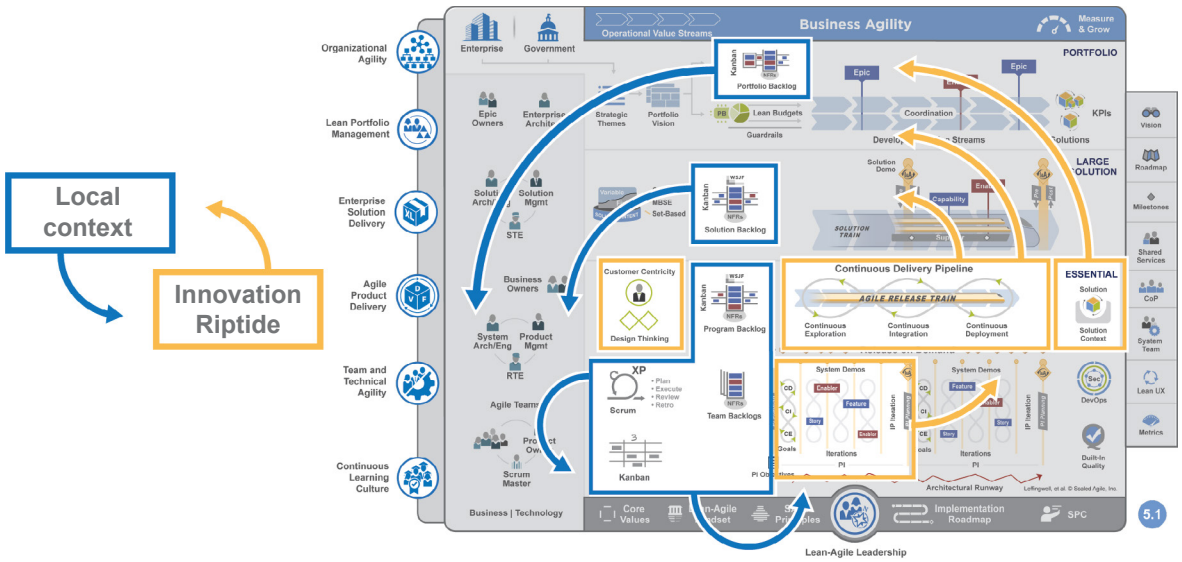
Customer requests

Competitors

Suppliers



SAFe has many ways to promote and capture innovation



The Innovation and Planning Iteration provides time for innovation

"Provide sufficient capacity margin to enable cadence."

—Don Reinertsen, Principles of Product Development Flow

Definitions
Innovation: Opportunity for innovation spikes, hackathons, and infrastructure improvements
Planning: Provides for cadence-based planning and is an estimating guard band for cadence-based delivery

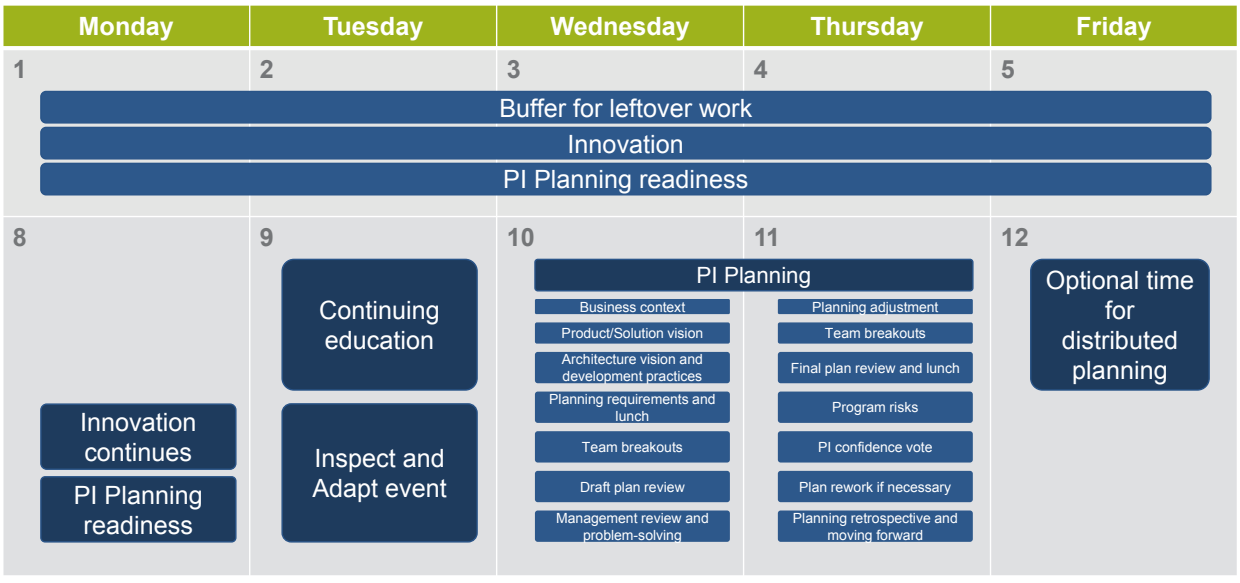
Common anti-patterns
Planning work for the IP iteration in PI Planning
Leaving testing or bug fixing to the IP Iteration
Leaving integration of the whole system to the IP Iteration

Leverage the Innovation and Planning Iteration

In SAFe, the Innovation and Planning (IP) Iteration occurs every PI and serves multiple purposes:

- Provides an estimating buffer for meeting PI Objectives
- Provides dedicated time for innovation, continuing education, PI Planning, and Inspect and Adapt (I&A) events

The IP Iteration



Organize a hackathon

- A hackathon is a one-day or two-day event in which teams work on new ideas that are often added to the Program Kanban
- Two key guidelines balance creativity and focus:
  - People can work on whatever they want, with whomever they want, as long as the work reflects the mission of the company
  - The teams demo their work to others at the end of the hackathon

Organize a Supplier showcase

- A Supplier showcase is a structured demo from an internal or external Supplier designed to help your teams better leverage the products or services offered by the Supplier
- A Supplier showcase helps teams:
  - Reduce work by better leveraging the Supplier's product ("Did you know that our API provides automatic routing? Here's how it works.")
  - Enable Architects, Product Owners, and Product Managers to identify Enablers and improve Roadmaps
- A Supplier showcase helps Suppliers by providing them direct feedback on what they need to supply to the teams

Explore some spikes

- A spike is an exploration Enabler Story designed to gain the knowledge necessary to reduce the risk of a technical approach, better understand a requirement, or increase the reliability of a Story estimate
- While spikes can be added to Team Backlogs at any time during a PI to reduce risk, spikes are commonly used to explore new ideas or determine feasibility of Epics
- Spikes increase learning within the team

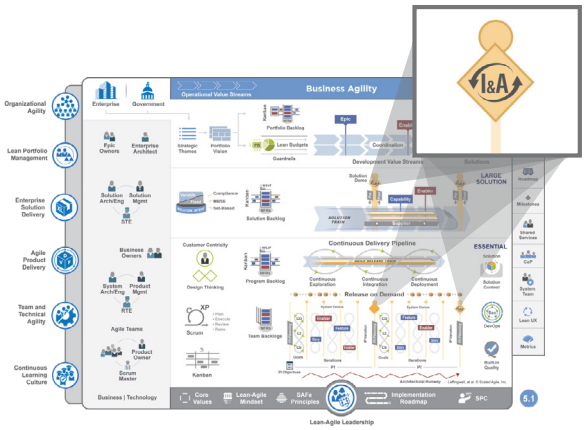
5.4 Inspect and Adapt

Improving results with the Inspect and Adapt event

Three parts of Inspect and Adapt (I&A):

1. **The PI System Demo**
2. **Quantitative and Qualitative Measurement**
3. **Problem-Solving Workshop**

- **Timebox:** 3 - 4 hours per PI
- **Attendees:** Teams and stakeholders



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, Product Owners, and the System Team
- Attended by Business Owners, ART stakeholders, Product Management, RTE, Scrum Masters, and teams

Program performance reporting

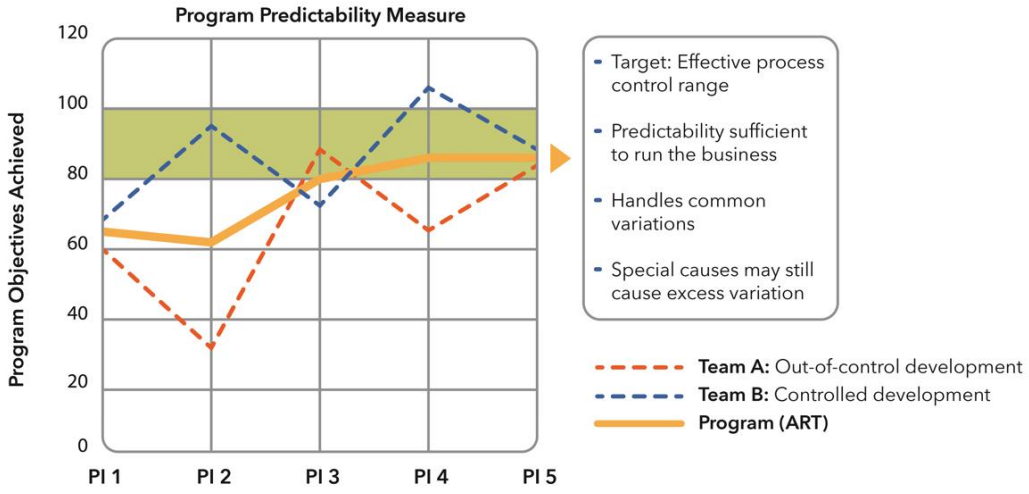
Prior to or as part of the PI System Demo, teams review the business value achieved for each of their PI Objectives.

- Teams meet with their Business Owners to self-assess the business value they achieved for each objective
- Each team's planned business value versus actual business value is then rolled up to the program predictability measure.

Objectives for PI 3	Business Value: Plan	Business Value: 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%		

Measure ART Predictability

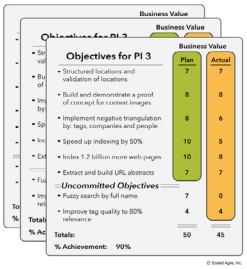
The report compares actual business value achieved to planned business value.



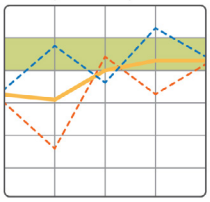
Team performance assessment

- PI Objectives for all the teams 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 (a) timeliness, (b) content, and (c) quality?
  - Scale: 1 to 10, max being maximum total business value
- Average these across all objectives and give yourself a program percent achievement score

Team PI Performance Report



Program Predictability Measure



Program performance Metrics

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			

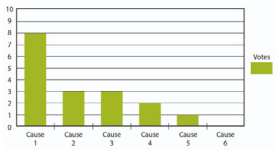
- Collect and discuss any other program Metrics that the team has agreed to collect.
- Product Managers and Product Owners use this data to ensure that overall quality measures are maintained.

Video: The Retrospective and Problem Solving Workshop Overview

Duration 4 min

bit.ly/IandARetro

The Problem-Solving Workshop

Agree on the problem to solve	Apply root-cause analysis and 5 whys	Identify the biggest root-cause using Pareto analysis
X Insufficiently reliable release commitments		
Restate the new problem for the biggest root-cause	**Brainstorm solutions**	**Identify improvement backlog items**
X Insufficient architectural runway		

Activity: Retrospective

Prepare 10 min

Share 15 min

- **Step 1:** Write what you will start doing, stop doing, and continue doing when you return to your workplace as a result of this course.
- **Step 2:** Place your ideas on the appropriate sheet.
- **Step 3:** Share any big ideas or breakthrough moments you had during class that you plan to bring back to the workplace.

Lesson review

In this lesson, you:

- Defined how to participate in the PO sync
- Planned how to participate in the System Demo
- Explained how to innovate throughout the PI
- Summarized how to Inspect and Adapt

Action Plan: Executing the PI

Duration 5 min

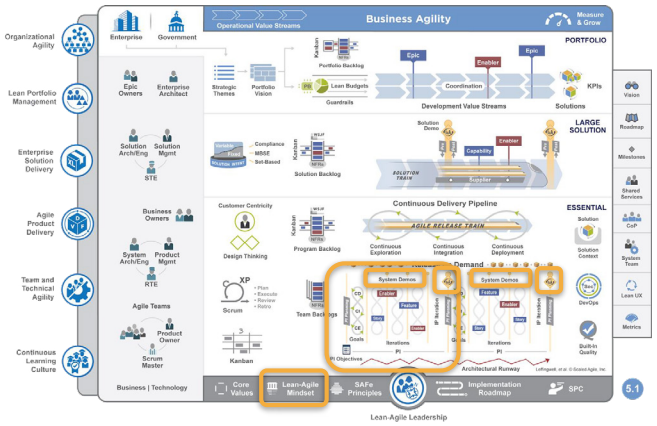
On the Action Plan page in your workbook, answer the following questions:

- How might you change your participation in and collaboration around the PO sync, System demo, and the Inspect and Adapt event?
- What kinds of innovation opportunities would you like to encourage and make time for with your Agile Team?
- What kinds of metrics do you plan to start collecting and reviewing during your Inspect and Adapt workshops?

Articles used in this lesson

Read these Framework articles to learn more about topics covered in this lesson

- Program Increment https://www.scaledagileframework.com/program-increment/
- System Demo https://www.scaledagileframework.com/system-demo/
- Lean Agile Mindset https://www.scaledagileframework.com/lean-agile-mindset/
- Inspect and Adapt https://www.scaledagileframework.com/inspect-and-adapt/



Continue your SAFe journey with the following resources

Download the Facilitators Guides to System Demo and PO Sync from the SAFe Art and Events page. https://bit.ly/Community-ToolkitsAndTemplates	**Watch the following video to gain coaching tips and tricks on how to run a successful System Demo.** https://bit.ly/Video-CoachingTipsSystemDemo
Watch this 5 Video Playlist that provides an overview of Inspect and Adapt as well as different aspects of the event. https://bit.ly/Video-InspectandAdapt	**Download the Facilitators Guide to SAFe Inspect and Adapt to prepare for and engage the ART in the event from the SAFe ART and Team Events, Inspect and Adapt page.** https://bit.ly/FG-DistributedInspectAndAdapt

5-35

Lesson 5: Executing the PI

How might you change your participation in and collaboration around the PO sync, System Demo, and the Inspect and Adapt event?

What kinds of innovation opportunities would you like to encourage and make time for with your Agile Team?

What kinds of metrics do you plan to start collecting and reviewing during your Inspect and Adapt Workshops?

Lesson 5 notes

Enter your notes below. If using a digital workbook, save your PDF often so you don't lose any of your notes.

Lesson 6

Practicing SAFe®

SAFe Course: Attending this course gives learners access to the SAFe Product Owner/Product Manager exam and related preparation materials.

Video: SAFe Certification Benefits

Duration 3 min

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https://bit.ly/BenefitsSAFeCertification

6-2

A Path Towards Certification

Access exam study guides and practice tests

Download your certificate of course completion

Take the **Certification Exam**

Showcase your **Digital Badge** and get recognized as a Certified SAFe Professional

Becoming a Certified SAFe Professional

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6-3

Video: Welcome to the SAFe Community Platform

Duration 3 min

https://bit.ly/SAFeCommunityPlatform

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6-4

Access tools and resources for your SAFe Practice and Continue Your Professional Development

- **SAFe Toolkits** for practicing SAFe
- **SAFe Community Video Hub**
- Access on-demand, self-paced, Getting Started **e-learning** modules and resources
- Organize and run virtual SAFe events in real time with **SAFe Collaborate**
- Measure Business Agility progress with the **SAFe Assessments**

SAFe Toolkits

Use toolkits to support your ART and team events

SAFe® Iteration Execution Toolkit

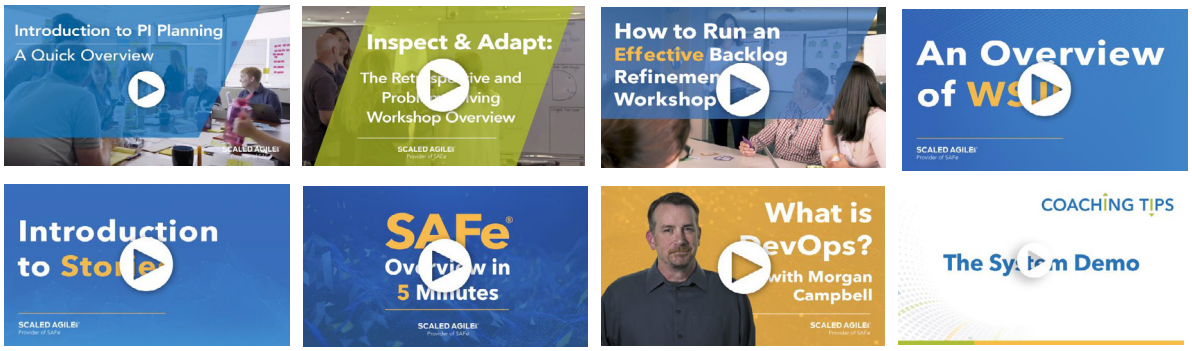
SCALED AGILE

SAFe® PI Execution Toolkit

SCALED AGILE

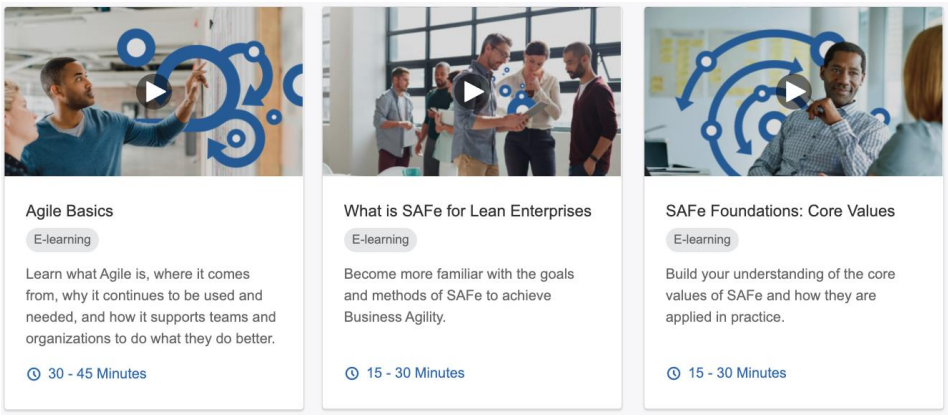
Community Video Hub

Access videos to support your learning and grow your skills



e-learning Resources

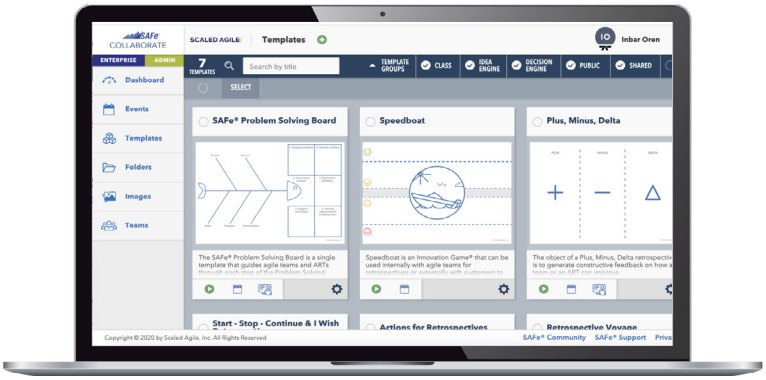
Discover and develop skills through e-learning modules to achieve your personal and professional goals



SAFe Collaborate

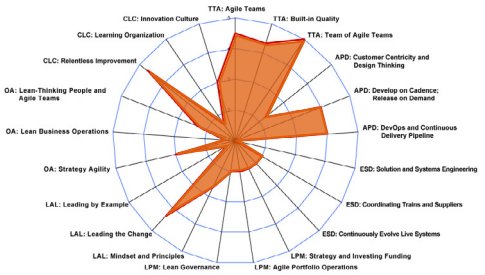
Organize and run virtual SAFe events in real time

SAFe Collaborate is a visual, cloud-based workspace where organizations can orchestrate virtual SAFe events activities easily and effectively with predesigned and customizable templates.



SAFe Assessments

Evaluate progress towards business agility with the SAFe assessments, Measure and Grow workshop, and our assessment partners



Business Agility Assessment

agilityhealth® enabling business agility

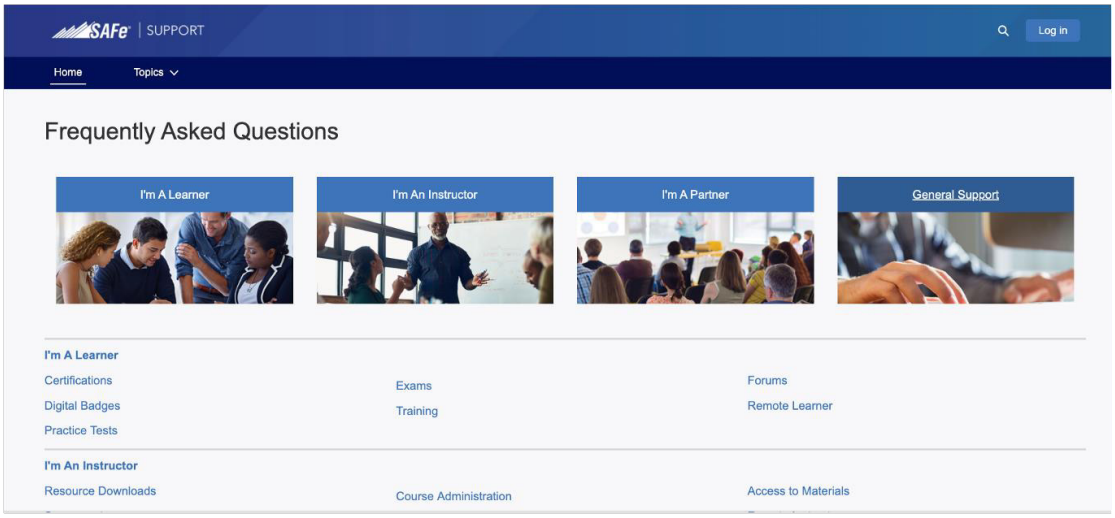
comparative agility

SAFe Forums

Join the SAFe POPM community to connect with other Product Owners and Product Managers

SAFe FAQs

When you need support, check the FAQ page for your question or contact SAI support directly.



Good luck on your SAFe Practice with the

SAFe Community Platform!

community.scaledagile.com

6-13

SAFe Glossary

SAFe Glossary: Visit the Scaled Agile Framework site (*www.scaledagileframework.com/glossary/*) to download glossaries translated into other languages.