

SAFe Product Owner Product Manager

Facilitating Lean-Agile Program Execution

5.0

SAFe® Authorized Course Attending this course gives students access to the SAFe Product Owner Product Manager exam and related preparation materials



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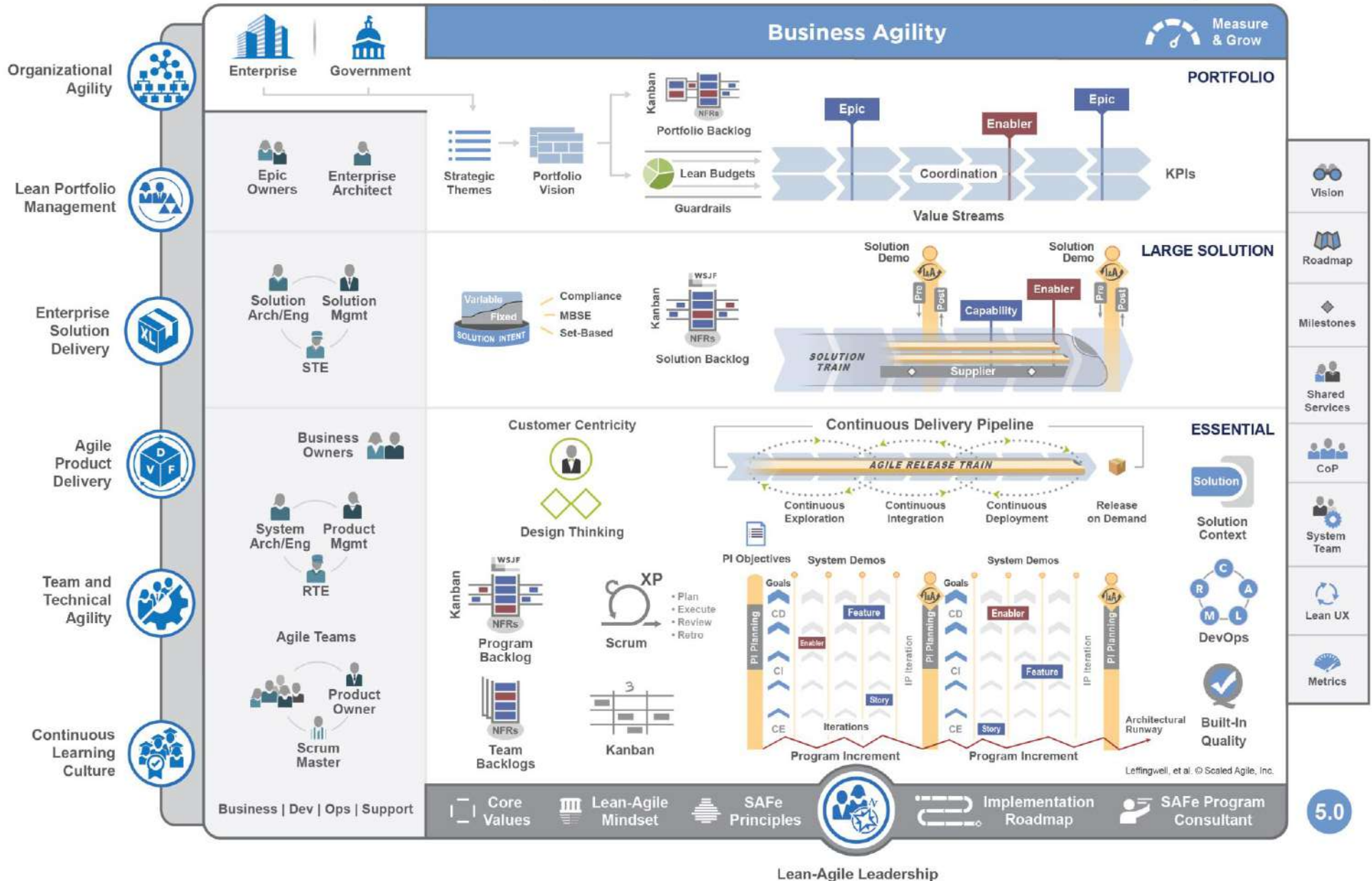
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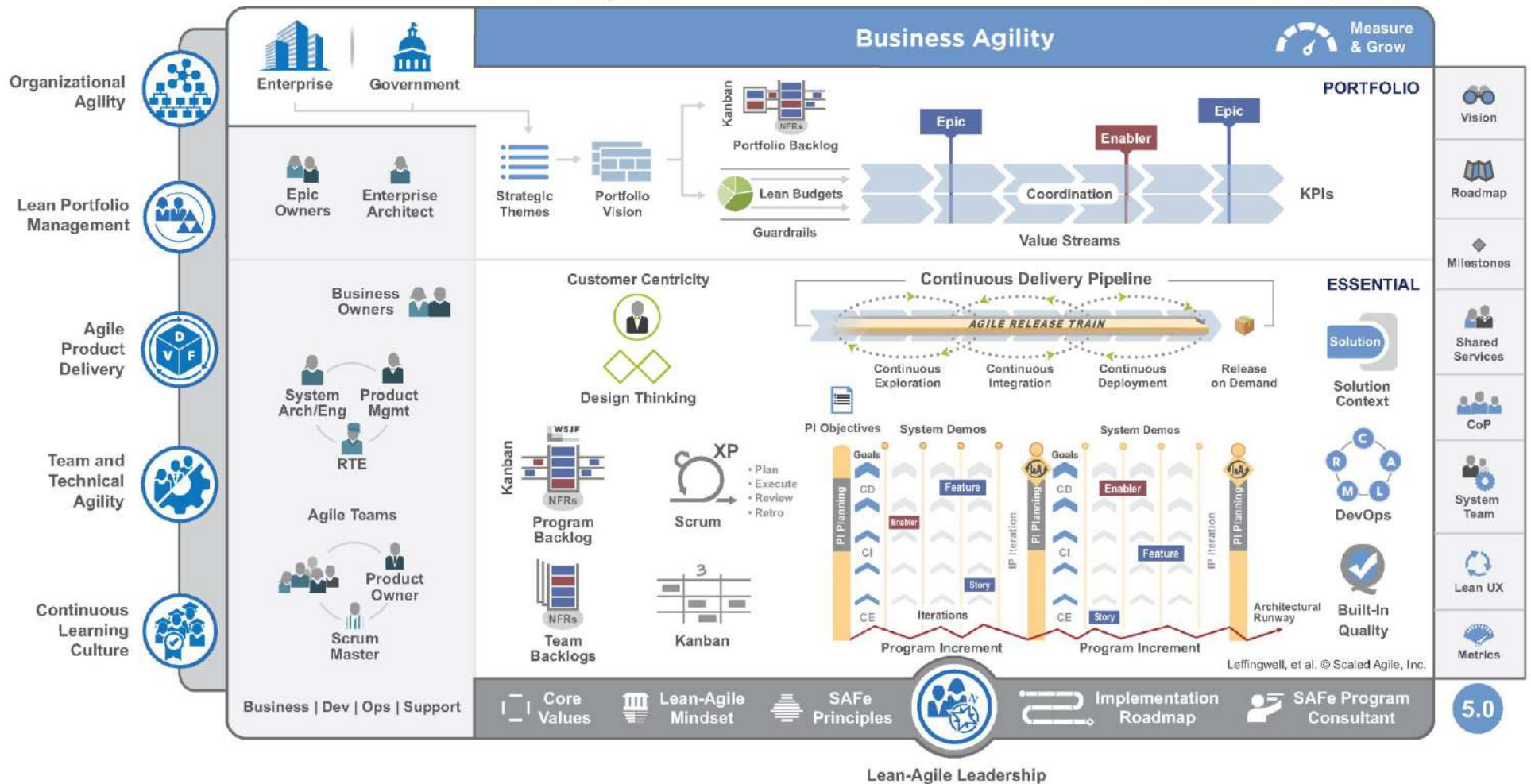
SAFe® for Lean Enterprises

Full Configuration



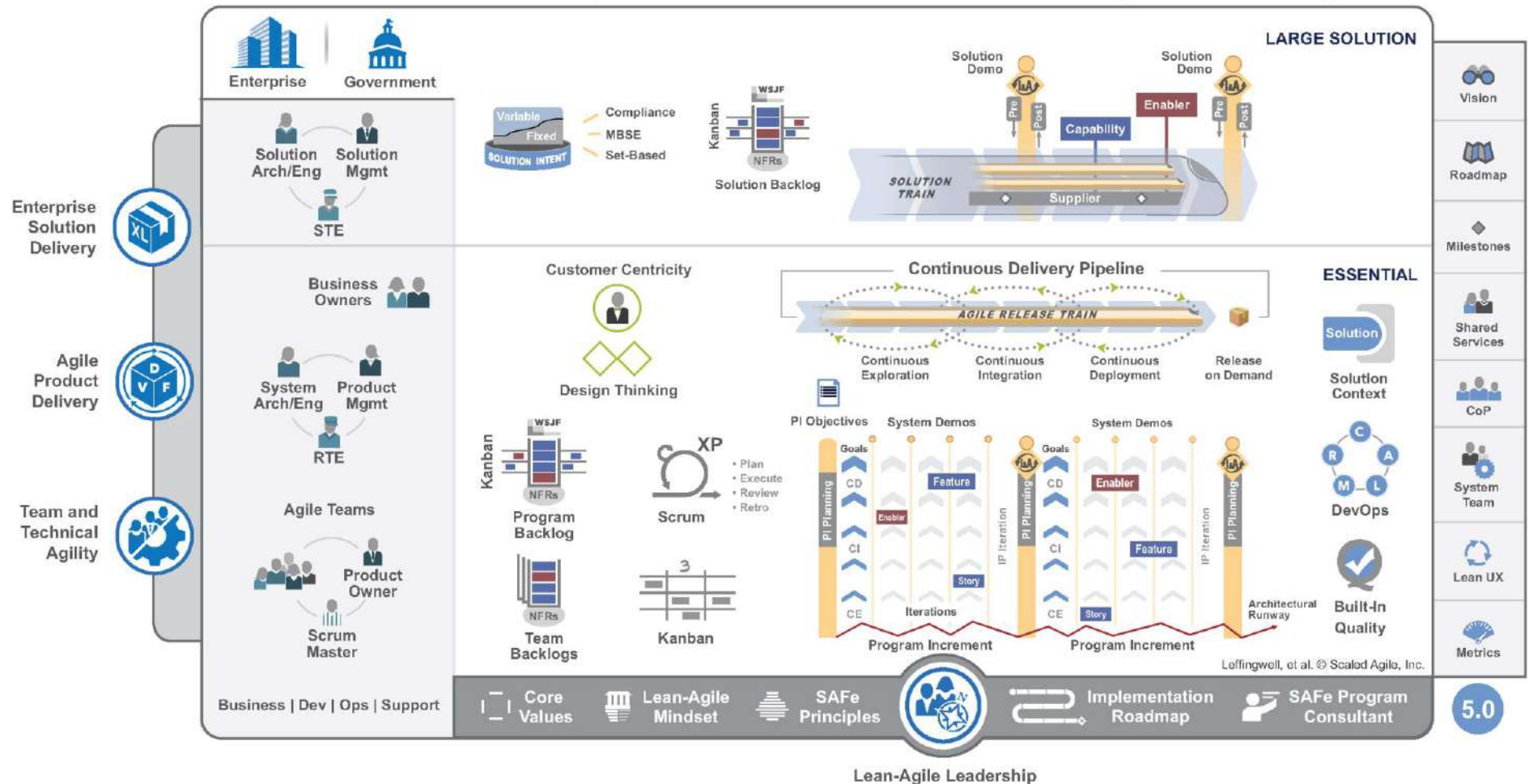
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Portfolio Configuration



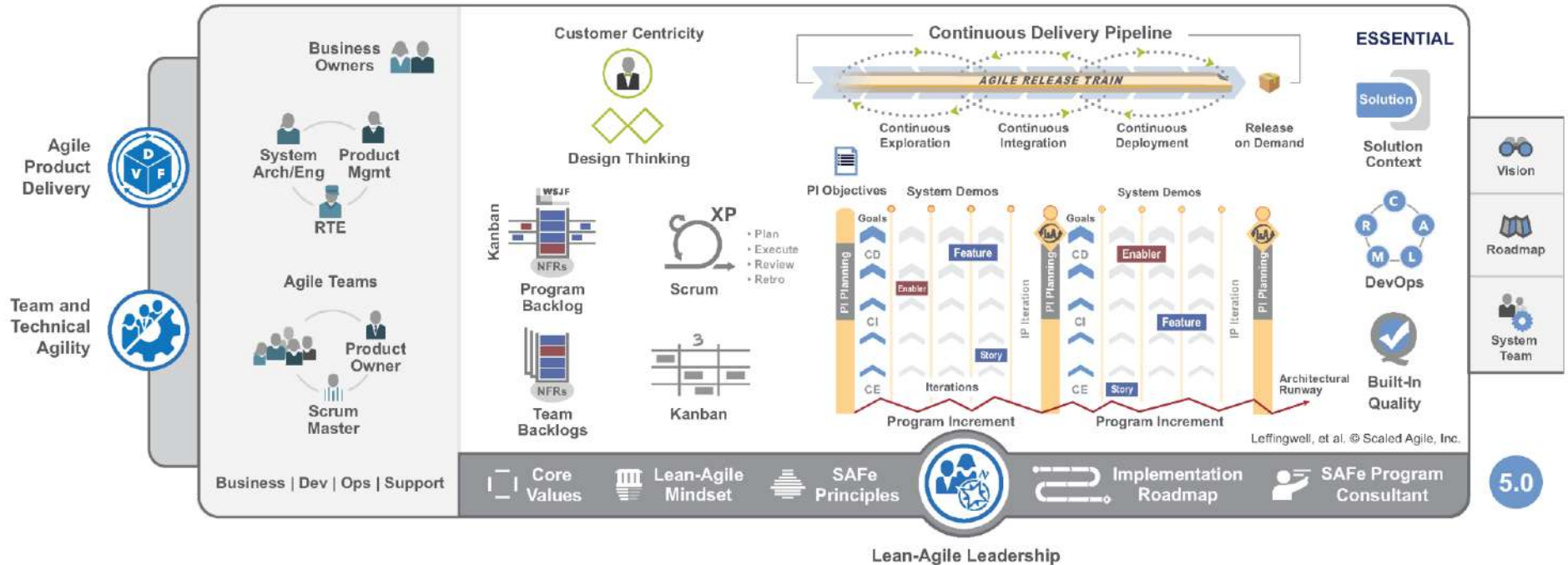
SAFe® for Lean Enterprises

Large Solution Configuration



SAFe® for Lean Enterprises

Essential Configuration





EXECUTION

Enterprise Solution Delivery

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



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



Team And Technical Agility

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



Lean-Agile Leadership

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



STRATEGY

Lean Portfolio Management

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



Organizational Agility

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

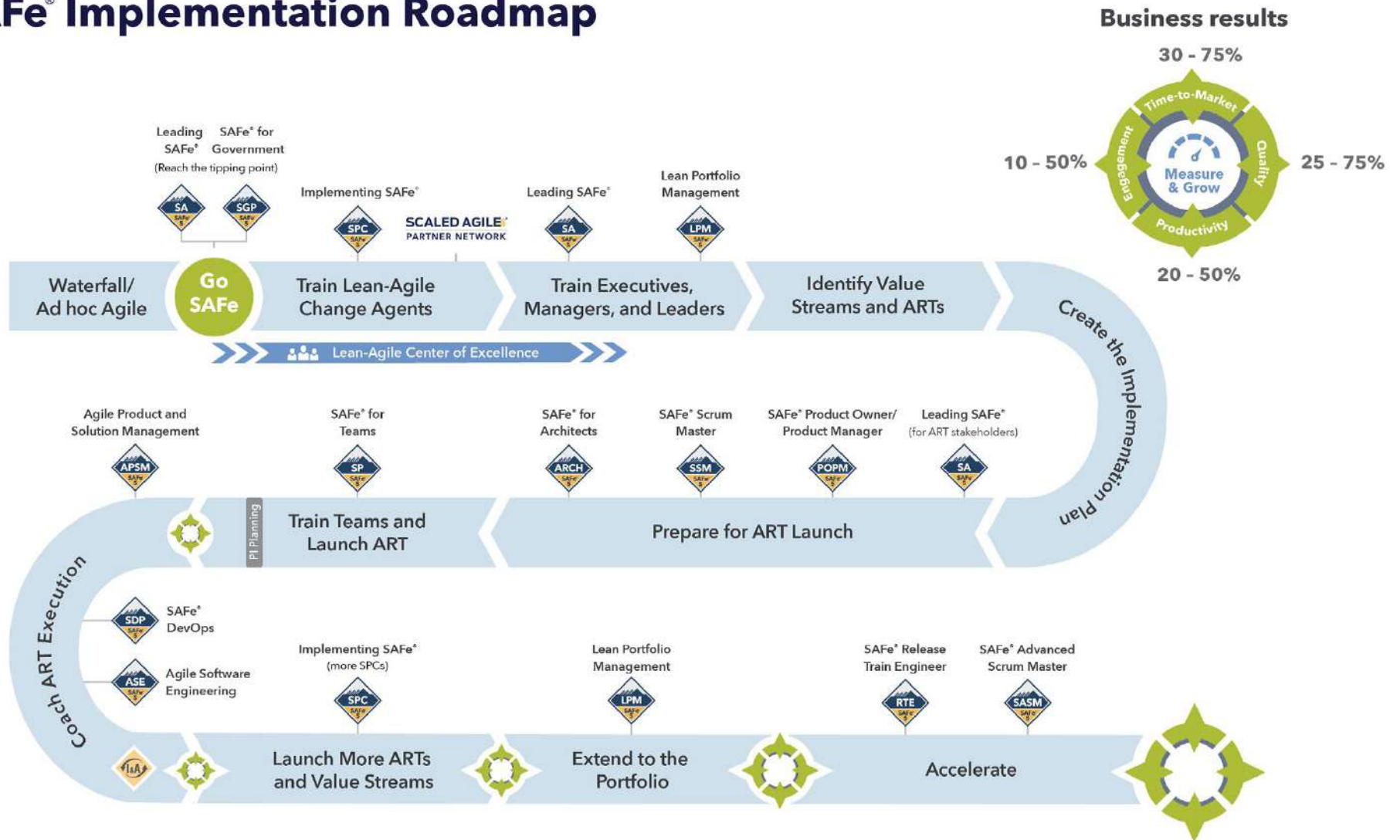


Continuous Learning Culture

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



SAFe® Implementation Roadmap



SAFe® Courses and Certifications

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

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Logistics

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

Notes:

Course goals

To perform the role of a SAFe Product Owner/Product Manager, you should be able to:

- ▶ Articulate the Product Owner and Product Manager roles
- ▶ Connect SAFe Lean-Agile principles and values to the PO/PM roles
- ▶ Decompose Epics into Features and decompose Features into Stories
- ▶ Refine Features and Stories
- ▶ Manage Program and Team Backlogs
- ▶ Collaborate with Agile Teams in estimating and forecasting work
- ▶ Represent Customer needs in Program Increment (PI) Planning
- ▶ Execute the Program Increment and deliver continuous value

Notes:

Course map

- ▶ Lesson 1: Becoming a Product Owner/Product Manager in the SAFe Enterprise
- ▶ Lesson 2: Preparing for PI Planning
- ▶ Lesson 3: Leading PI Planning
- ▶ Lesson 4: Executing Iterations
- ▶ Lesson 5: Executing the PI
- ▶ Lesson 6: Becoming a Certified SAFe Professional

Notes:

Lesson 1

Becoming a Product Owner/Product Manager in the SAFe Enterprise

Learning Objectives:

- 1.1 Describe SAFe for Lean Enterprises
- 1.2 Explain Value Streams
- 1.3 Describe Lean-Agile Mindset decision-making
- 1.4 Describe Product Owner/Product Manager responsibilities



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Video: Introduction to Terrific Transport Corporation



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

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

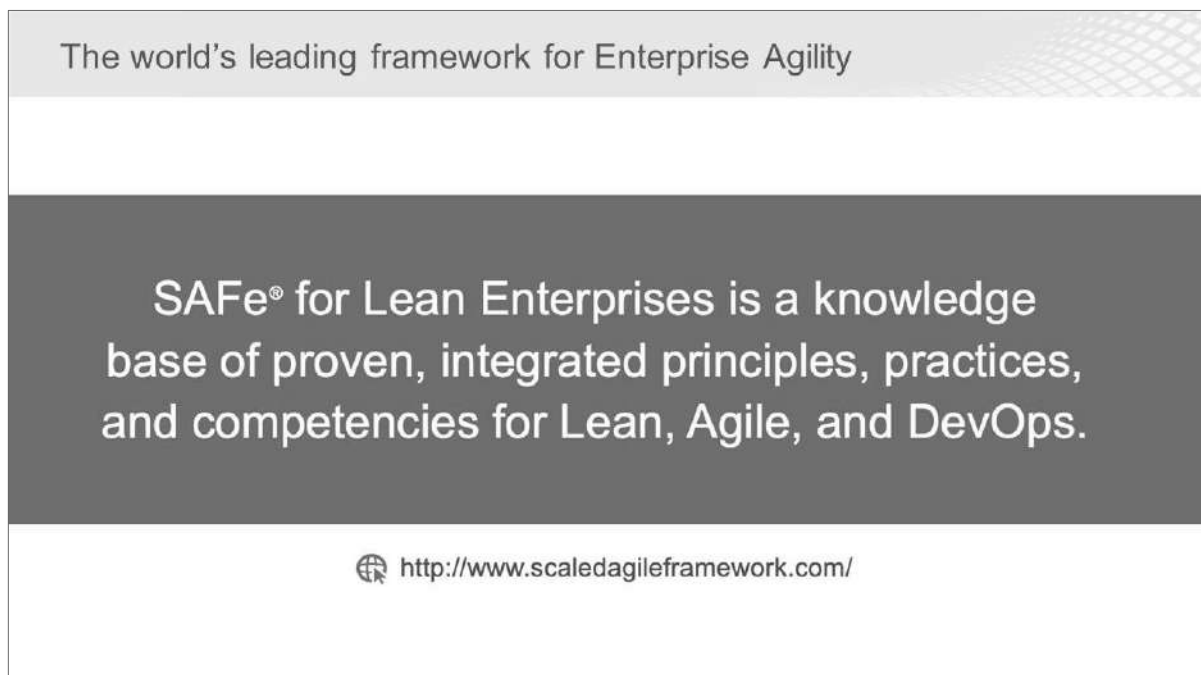


Click to here to play video
<https://vimeo.com/296743657/e22b54b952>

Notes:



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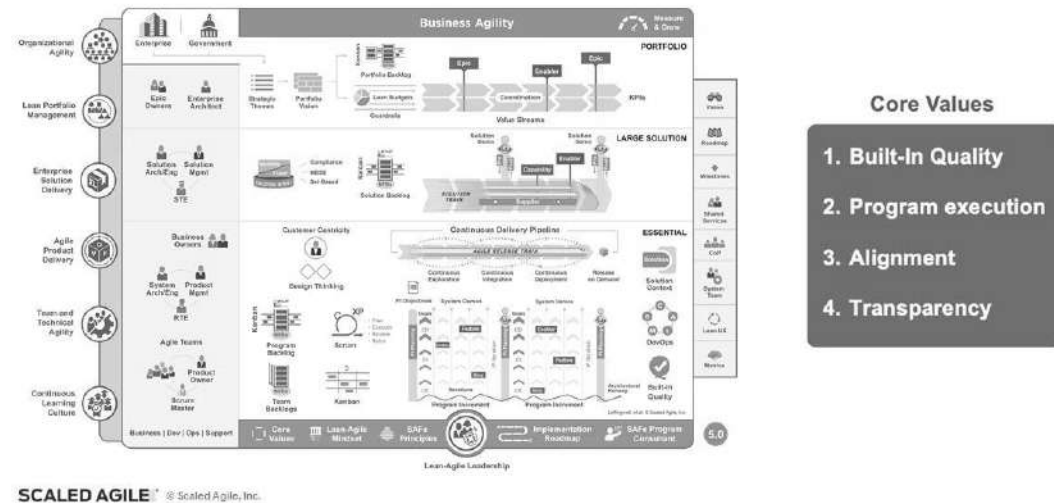


Notes:

1.1 Describe SAFe for Lean Enterprises

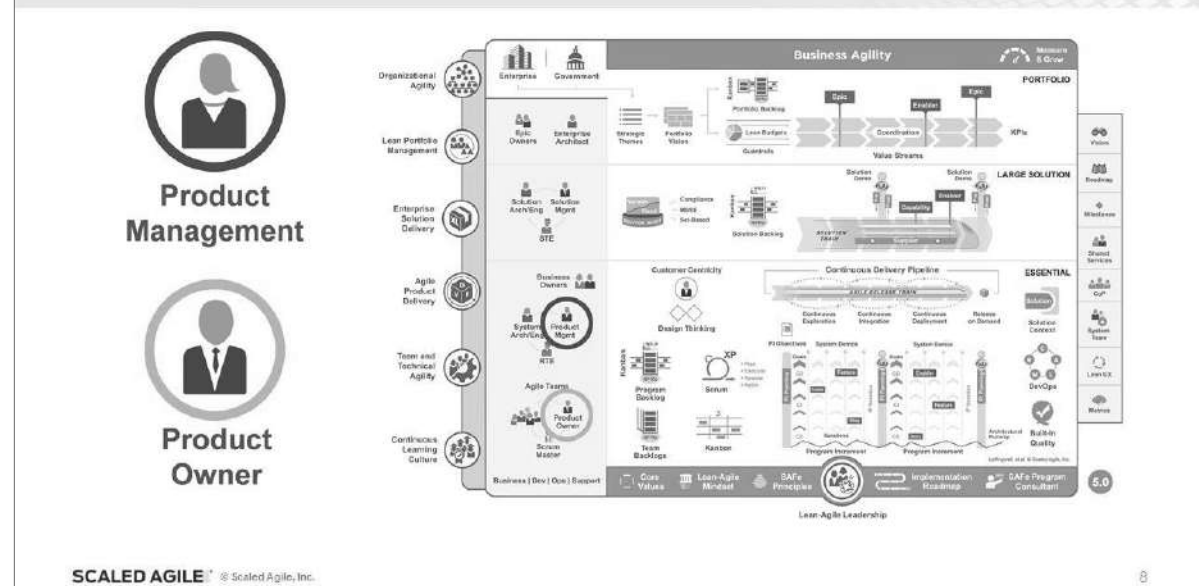
The Scaled Agile Framework® (SAFe)

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



Notes:

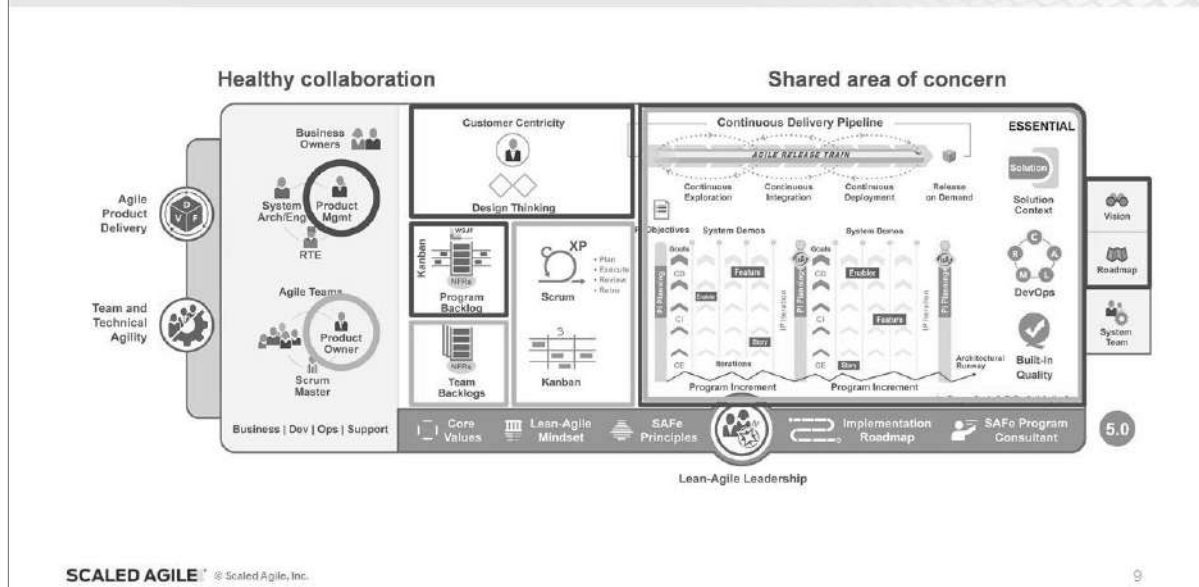
Product Owner and Product Management in SAFe



Notes:

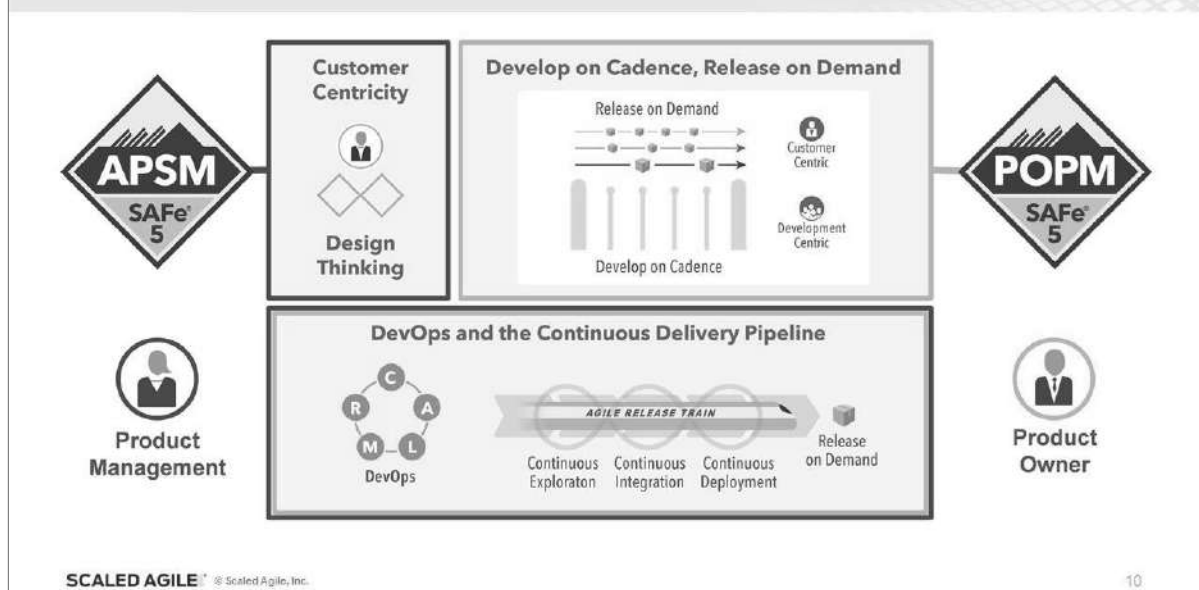
1.1 Describe SAFe for Lean Enterprises

Product Management and Product Ownership focus



Notes:

This course focuses primarily on execution



Notes:

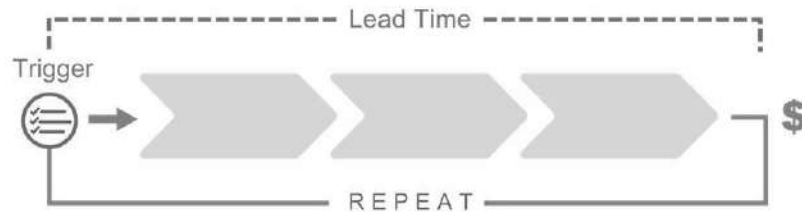
1.2 Explain Value Streams

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Notes:

What is a Value Stream?



- ▶ Value Streams represent the series of steps an organization uses to implement Solutions that provide a continuous flow of value to a Customer.
- ▶ Value Streams:
 - Are used to define and realize portfolio-level business objectives and organize Agile Teams to deliver value more rapidly
 - Contain the systems, the people who do the work, and the flow of information and materials

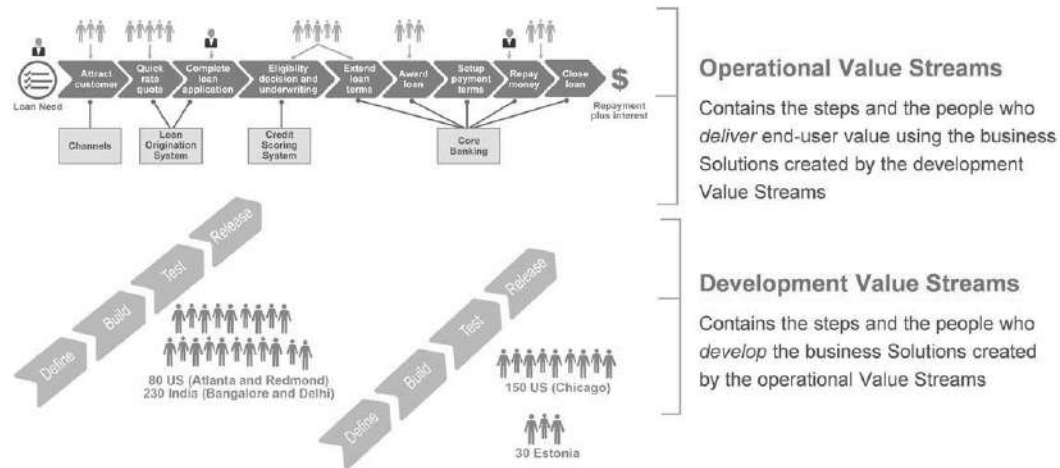
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Notes:

1.2 Explain Value Streams

Organize people in Value Streams



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Notes:

What is a Solution?

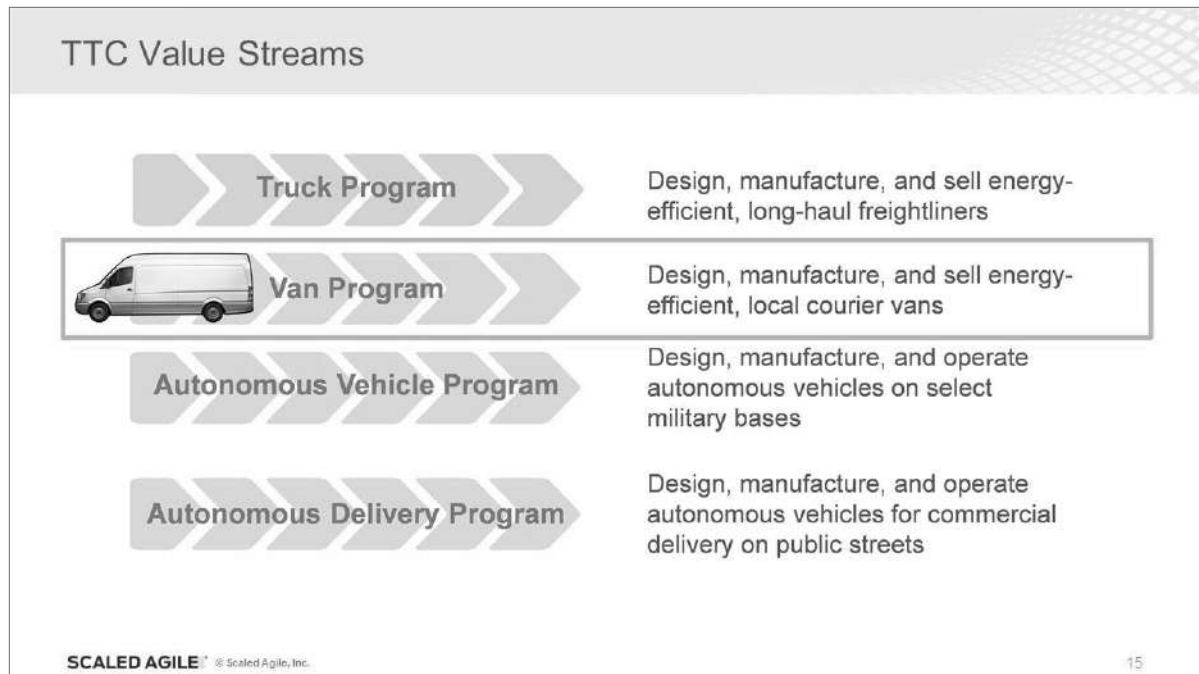
- ▶ Each Value Stream produces one or more Solutions, which are products, services, or systems delivered to the Customer, whether internal or external to the Enterprise.
- ▶ A Solution may be a product, a product line, a set of systems, or a service that enables an operational Value Stream.



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Notes:



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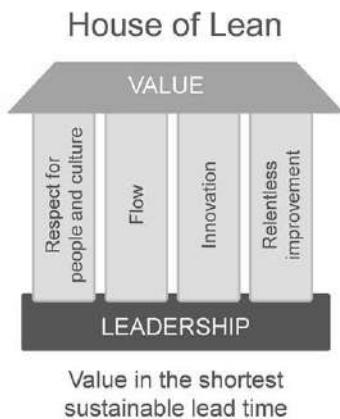
1.3 Describe Lean-Agile Mindset decision-making

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Notes:

Embrace the Lean-Agile Mindset



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.

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Notes:

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.

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Notes:

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.

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Notes:

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

Notes:



Discussion: Lean-Agile Mindset

Duration
10 min

- ▶ As a group, discuss how the SAFe Lean-Agile Principles will impact your decision-making as a Product Owner or Product Manager.
- ▶ More details on the principles can be found in your Student Workbook.

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Notes:

Principle #1 - Take an economic view

Delivering the 'best value and quality for people and society in the shortest sustainable lead time' requires a fundamental understanding of the economics of building systems. Everyday decisions must be made in a proper economic context. This includes the strategy for incremental value delivery and the broader economic framework for each value stream. This framework highlights the trade-offs between risk, Cost of Delay (CoD), manufacturing, operational, and development costs. In addition, every value stream must operate within the context of an approved budget, and be compliant to the guardrails which support decentralized decision-making.

Principle #2 - Apply systems thinking

Deming observed that addressing the challenges in the workplace and the marketplace requires an understanding of the systems within which workers and users operate. Such systems are complex, and they consist of many interrelated components. But optimizing a component does not optimize the system. To improve, everyone must understand the larger aim of the system. In SAFe, systems thinking is applied to the system under development, as well as to the organization that builds the system.

Principle #3 - Assume variability; preserve options

Traditional design and life cycle practices encourage choosing a single design-and-requirements option early in the development process. Unfortunately, if that starting point proves to be the wrong choice, then future adjustments take too long and can lead to a sub-optimal design. A better approach is to maintain multiple requirements and design options for a longer period in the development cycle. Empirical data is then used to narrow the focus, resulting in a design that creates optimum economic outcomes.

Principle #4 - Build incrementally with fast, integrated learning cycles

Developing solutions incrementally in a series of short iterations allows for faster customer feedback and mitigates risk. Subsequent increments build on the previous ones. Since the 'system always runs', some increments may serve as prototypes for market testing and validation; others become minimum viable products (MVPs). Still others extend the system to with new and valuable functionality. In addition, these early, fast feedback points help determine when to 'pivot,' where necessary to an alternate course of action.

Principle #5 - Base milestones on objective evaluation of working systems

Business owners, developers, and customers have a shared responsibility to ensure that investment in new solutions will deliver economic benefit. The sequential, phase-gate development model was designed to meet this challenge, but experience shows that it does not mitigate risk as intended. In Lean-Agile development, integration points provide objective milestones at which to evaluate the solution throughout the development life cycle. This regular evaluation provides the financial, technical, and fitness-for-purpose governance needed to assure that a continuing investment will produce a commensurate return.

Principle #6 - Visualize and limit WIP, reduce batch sizes, and manage queue lengths

Lean enterprises strive to achieve a state of continuous flow, where new system capabilities move quickly and visibly from concept to cash. Keys to implementing flow are: 1. Visualize and limit the amount of work in process (WIP). This increases throughput and limits demand to actual capacity. 2. Reduce the batch sizes of work to facilitate fast and more reliable flow. 3. Manage queue lengths to reduce the wait times for new functionality.

Principle #7 - Apply cadence, synchronize with cross-domain planning

Cadence creates predictability and provides a rhythm for development. Synchronization causes multiple perspectives to be understood, resolved, and integrated at the same time. Applying development cadence and synchronization, coupled with periodic cross-domain planning, provides the mechanisms needed to operate effectively in the presence of the inherent development uncertainty.

Principle #8 - Unlock the intrinsic motivation of knowledge workers

Lean-Agile leaders understand that ideation, innovation, and employee engagement are not generally motivated by individual incentive compensation. Such individual incentives can create internal competition and destroy the cooperation necessary to achieve the larger aim of the system. Providing autonomy and purpose, minimizing constraints, creating an environment of mutual influence, and better understanding the role of compensation are keys to higher levels of employee engagement. This approach yields better outcomes for individuals, customers, and the enterprise.

Principle #9 - Decentralize decision-making

Achieving fast value delivery requires decentralized decision-making. This reduces delays, improves product development flow, enables faster feedback, and creates more innovative solutions designed by those closest to the local knowledge. However, some decisions are strategic, global, and have economies of scale that justify centralized decision-making. Since both types of decisions occur, creating a reliable decision-making framework is a critical step in empowering employees and ensuring a fast flow of value.

Principle #10 - Organize around value

Many enterprises today are organized around principles developed during the last century. In the name of intended efficiency, most are organized around functional expertise. But in the digital age, the only sustainable competitive advantage is the speed with which an organization can respond to the needs of its customers with new and innovative solutions. These solutions require cooperation amongst all the functional areas, with their incumbent dependencies, handoffs, waste and delays. Instead, Business Agility demands that enterprises organize around value to deliver more quickly. And when market and customer demands change, the enterprise must quickly and seamlessly reorganize around that new value flow.

1.4 Describe Product Owner/Product Manager responsibilities

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Notes:

What is an Agile Team?

- ▶ An Agile Team is a cross-functional, self-organizing team that defines, builds, tests, and possibly deploys valuable things
- ▶ Uses Scrum and Kanban for team Agility
- ▶ Applies Built-in Quality practices for Technical Agility
- ▶ Delivers value every two-week Iteration
- ▶ Basic building block of the SAE Enterprise

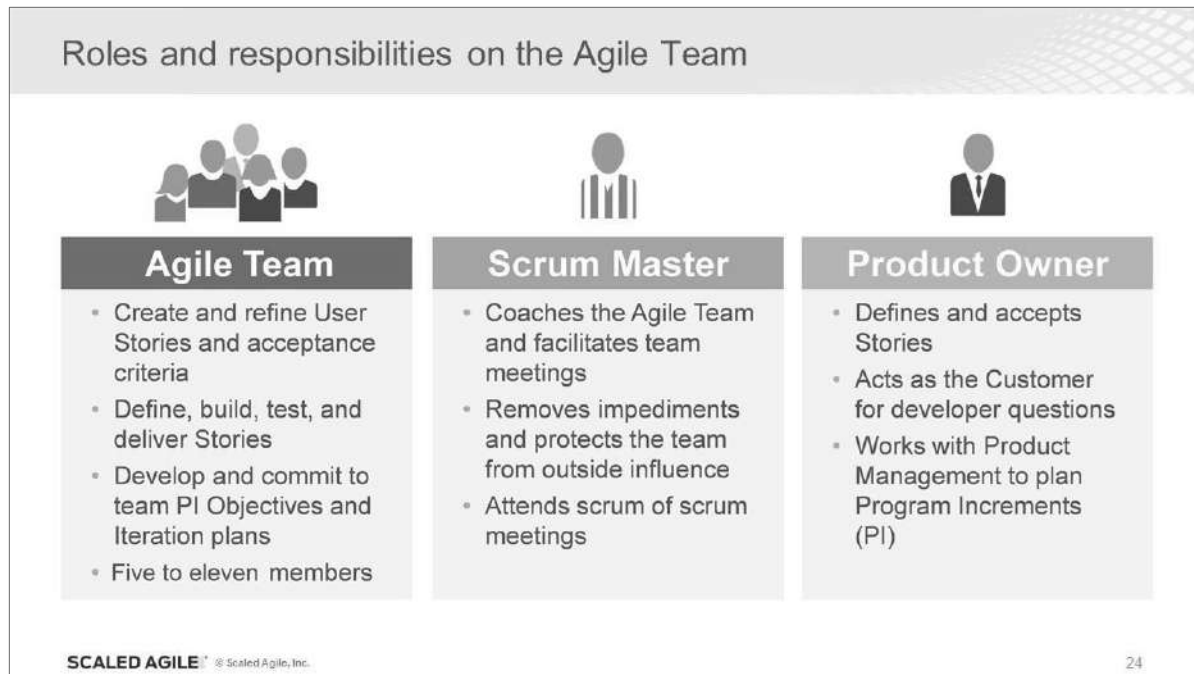


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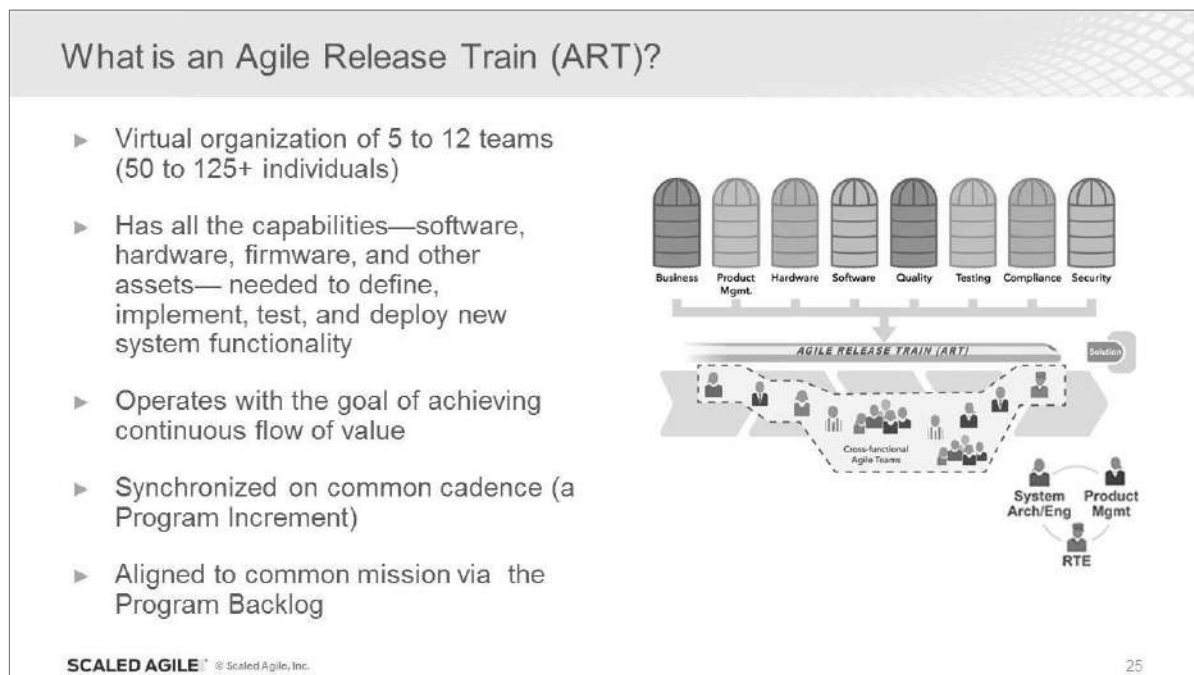
Notes:

1.4 Describe Product Owner/Product Manager responsibilities



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Notes:



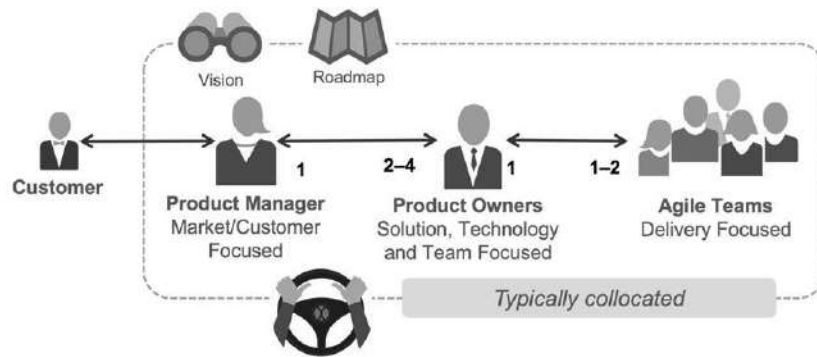
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Notes:

1.4 Describe Product Owner/Product Manager responsibilities

PMs and POs collaboratively steer the train

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






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Notes:

PM, PO, and Agile Team areas of focus

Product Manager <i>Drives the PI and product</i>	Product Owner <i>Drives the Iteration</i>	Agile Team <i>Drives program execution</i>
		
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	
<i>Build the right thing...</i>		<i>...Build the right way</i>

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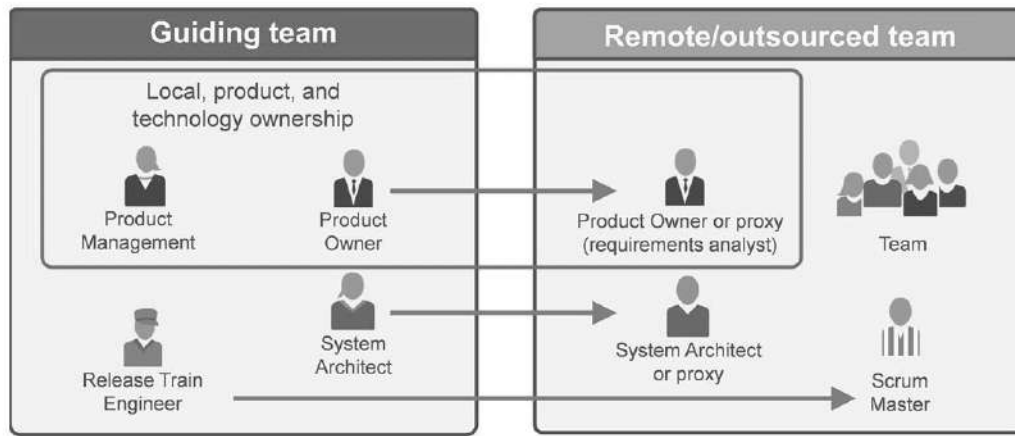
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Notes:

1.4 Describe Product Owner/Product Manager responsibilities

Product Owners/Product Managers and distributed teams

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

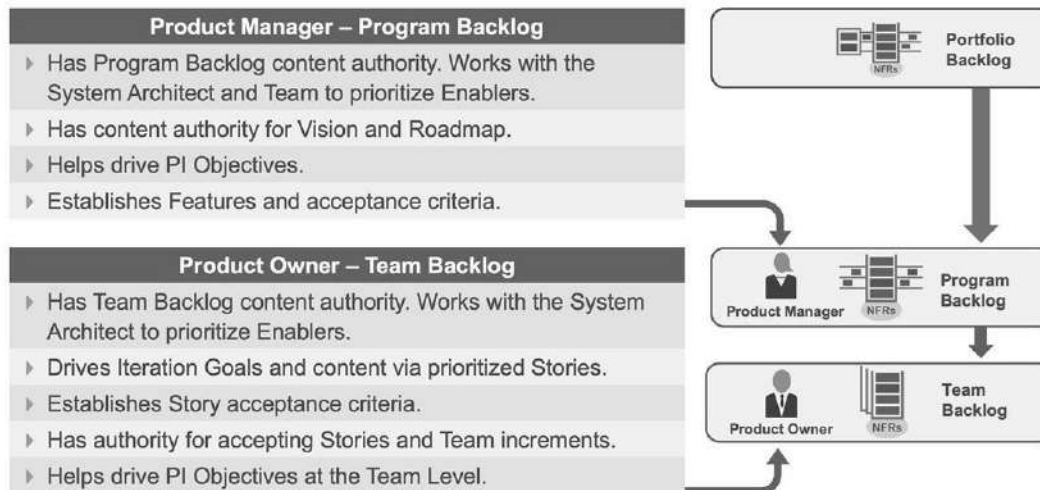


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Notes:

PO and PM governance: Content authority



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Notes:

1.4 Describe Product Owner/Product Manager responsibilities

PO/PMs collaborate with other ART roles

	Release Train Engineer	The RTE acts as the chief Scrum Master for the train
	System Architect-Engineering	System Architect-Engineering provides architectural guidance and technical enablement to the teams on the train
	System Team	The System Team provides processes and tools to integrate and evaluate assets early and often
	Business Owners	Business Owners are the key stakeholders on the Agile Release Train

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Notes:

Product Owner attributes




- ▶ Excellent written and verbal communication skills
- ▶ Available to the Agile Team
- ▶ Good domain knowledge
- ▶ Good business sense
- ▶ Technical foundation
- ▶ Decisive
- ▶ Strong negotiation skills

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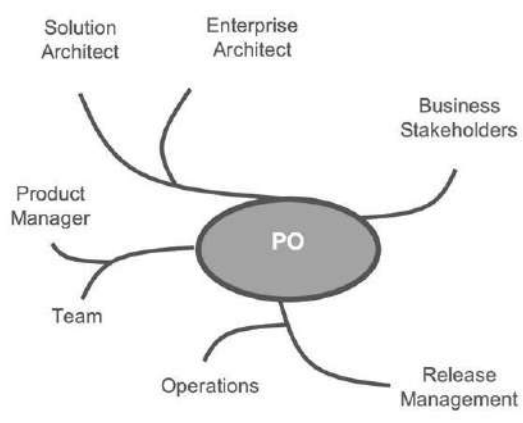


Activity: Key stakeholders and collaborators

Prepare
5 min

Share
10 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.



```
graph TD; PO((PO)) --- SA[Solution Architect]; PO --- EA[Enterprise Architect]; PO --- BS[Business Stakeholders]; PO --- RM[Release Management]; PO --- Ops[Operations]; PO --- PM[Product Manager]; PO --- Team[Team];
```

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Notes:



Action Plan: Becoming a Product Owner/Product Manager in the SAFe Enterprise



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/or your organization to establish or foster the Product Owner and Product Manager roles 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 it is organized around value and describe ways it might improve organizing around value.



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Notes:

Lesson review

In this lesson you:

- ▶ Explored SAFe for Lean Enterprises
- ▶ Reviewed Value Streams
- ▶ Discovered how the Lean-Agile Mindset impacts PO and PM decision-making
- ▶ Reviewed PO/PM responsibilities

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Notes:

Lesson 2

Preparing for PI Planning

Learning Objectives:

- 2.1 Describe the Program Increment
- 2.2 Describe the Vision
- 2.3 Forecast work through Roadmaps
- 2.4 Create beneficial Features
- 2.5 Manage the Program Backlog and Kanban



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2.1 Describe the Program Increment

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Notes:



Video: PI Planning





SAFe®
at Travelport
The Power of PI Planning

SCALED AGILE®
Provider of SAFe®

<https://vimeo.com/356905724/60d2ba24bf>

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Notes:

2.1 Describe the Program Increment

PI Planning

Cadence-based PI Planning meetings are the heartbeat of the Agile Enterprise.

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



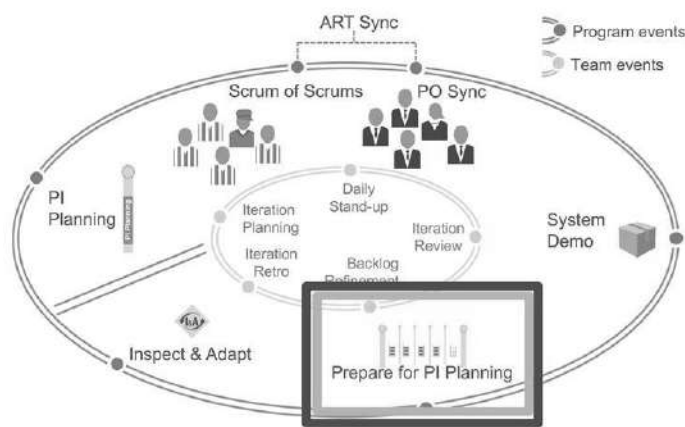
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Notes:

Preparing for PI Planning

Supported by POs, PMs take the lead in preparing for PI Planning



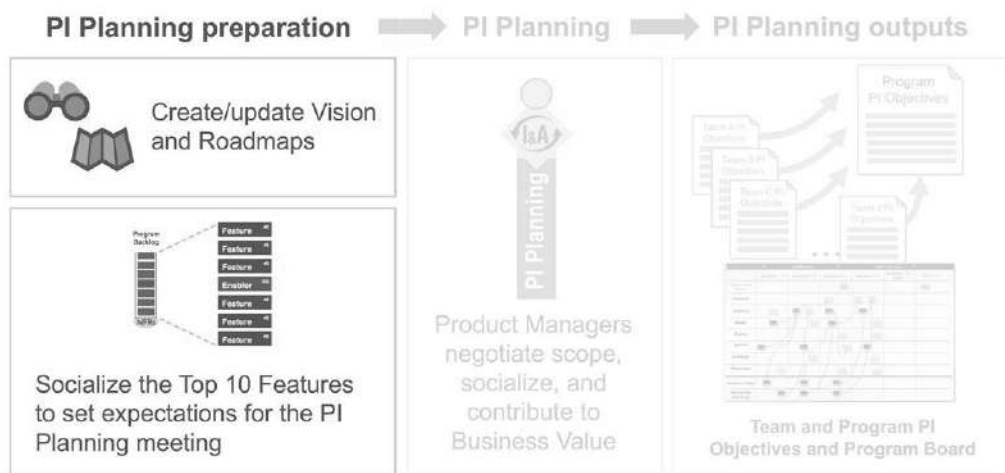
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Notes:

2.1 Describe the Program Increment

POs and PMs are essential to successful PI Planning



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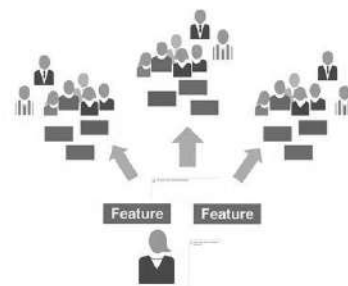
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Notes:

How much preparation is enough?

Both too much and too little preparation can cause problems


- ▶ More preparation may be needed if creating entirely new Features or 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



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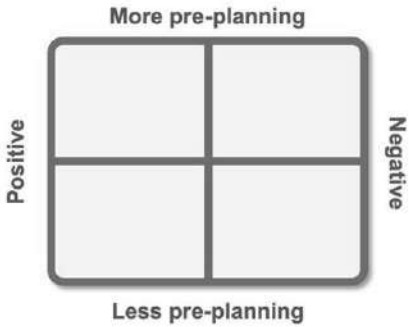
Notes:



Discussion: Just enough pre-planning

Duration
5 min

- ▶ As a class, discuss how the amount of pre-PI Planning you do can have positive and negative outcomes.
- ▶ The instructor will capture your thoughts on a flip chart in the quadrants shown at right.
- ▶ Consider how the Lean-Agile mindset and SAFe practices influence and enable PI Planning preparedness.



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Notes:

2.2 Describe the Vision

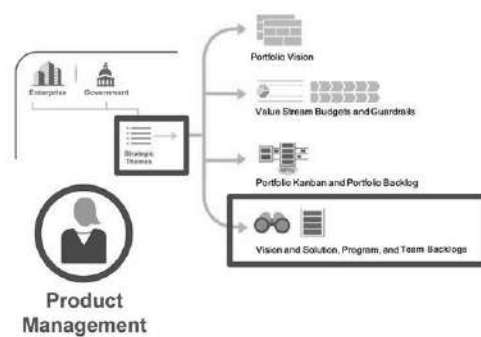
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Notes:

Portfolio Strategic Themes guide the Vision

Product Management collaborates with Lean Portfolio Management to ensure the Vision and the Program/Team Backlogs are aligned to Strategic Themes.



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Notes:



Video: Terrific Transport Corporation Strategic Themes

Duration
3 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
<https://vimeo.com/310890102/890a0eaa12>

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Notes:



Discussion: Van Program Strategic Theme

Duration
3 min

	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

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

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Notes:

Prepare the Vision

The Vision is 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 them?
- ▶ What nonfunctional requirements (performance, reliability, platforms, etc.) does the Solution deliver?



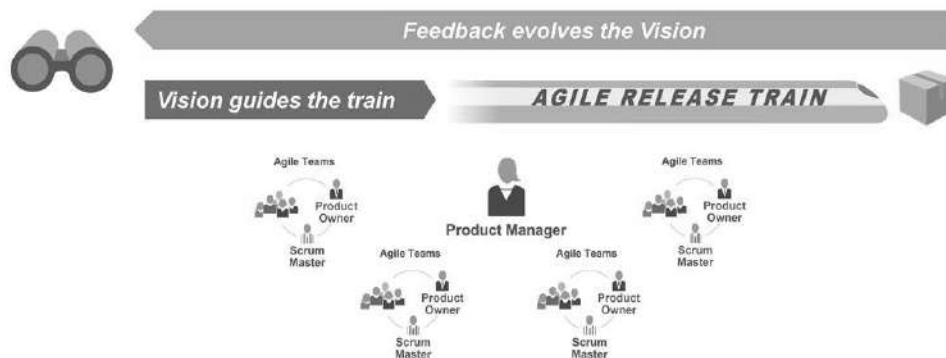
Common formats:

- ▶ Rolling-wave briefings
- ▶ Vision document
- ▶ Preliminary data sheet
- ▶ Draft press release

Notes:

Product Management creates the vision for the ART

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



Notes:

Vision: Postcard from the future

- 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

Heath, Chip and Dan Heath. *Switch: How to Change Things When Change Is Hard*. New York: Broadway Books, 2010

Notes:

Van Maintenance Advisor postcard from the future



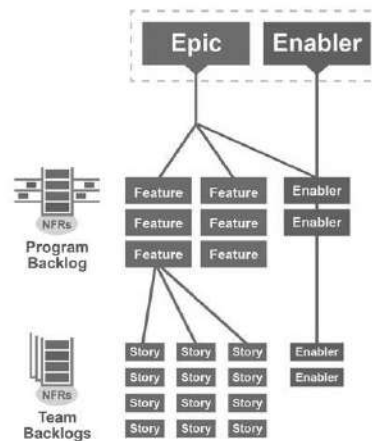
Notes:

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, acceptance criteria, and is sized or split as necessary to be delivered by a single ART in a PI.


Stories are short descriptions of a small piece of desired functionality, written from the perspective of the user.



An Enabler supports the activities needed to extend the Architectural Runway to provide future business functionality.

Enablers are captured in various backlogs throughout SAFe.

Notes:



Activity: Create Epics to fulfill the Vision

Prepare
5 min

Share
10 min

- ▶ The Van Maintenance Advisor is a substantial new offering. It will consist of several Epics representing significant development initiatives.
- ▶ Working as a team, review these three Epics that support the Van Maintenance Advisor offering. Can you add one additional Epic?

Epic: Develop next-generation van hardware to capture additional data on van performance

Epic: Maintenance programs tailored for each van based on sensor data

Epic: Automated electronic inspections and tracking

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Notes:

2.3 Forecast work through Roadmaps

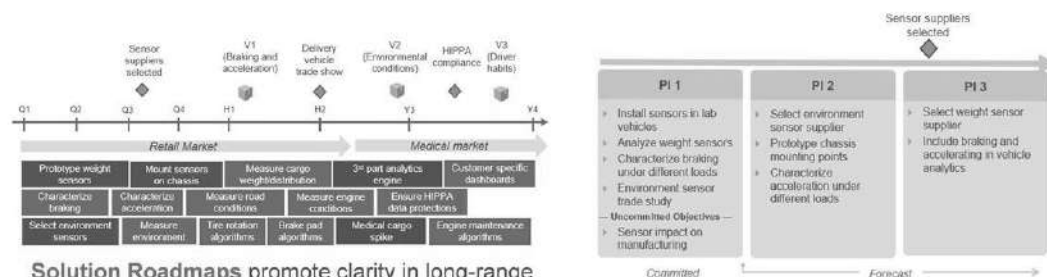
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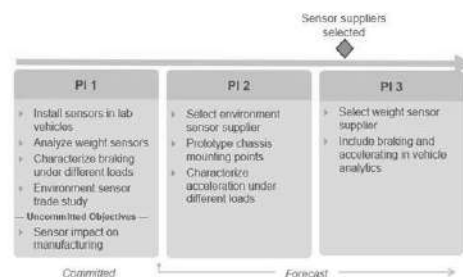
Notes:

Create forecasts through Roadmaps

- ▶ The Enterprise, and its stakeholders, need to plan for the future
- ▶ Roadmaps enable the Enterprise to make forecasts about the future while adapting to changing market opportunities



Solution Roadmaps promote clarity in long-range planning and help Product Managers collaborate with Portfolio Management



The PI Roadmap provides additional detail for near-term PIs

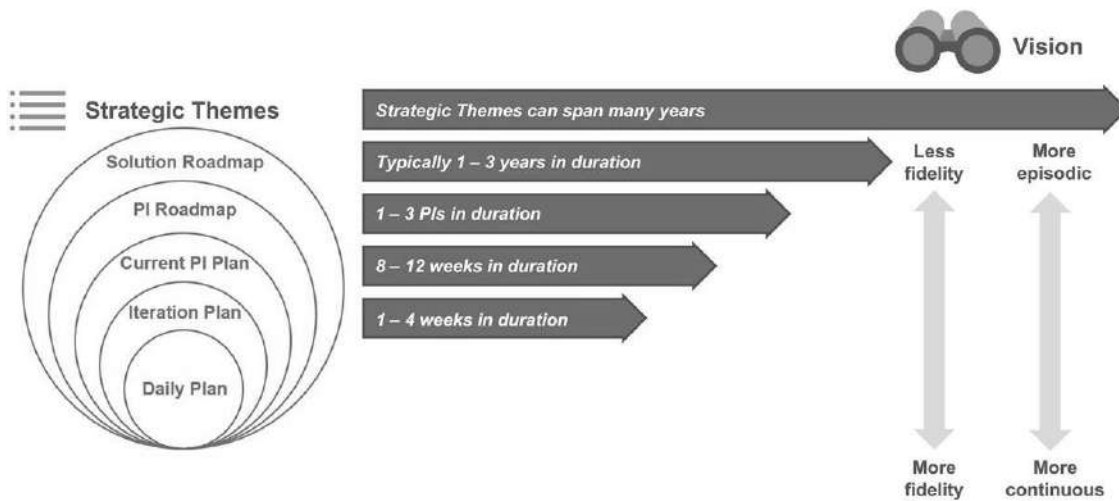
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Notes:

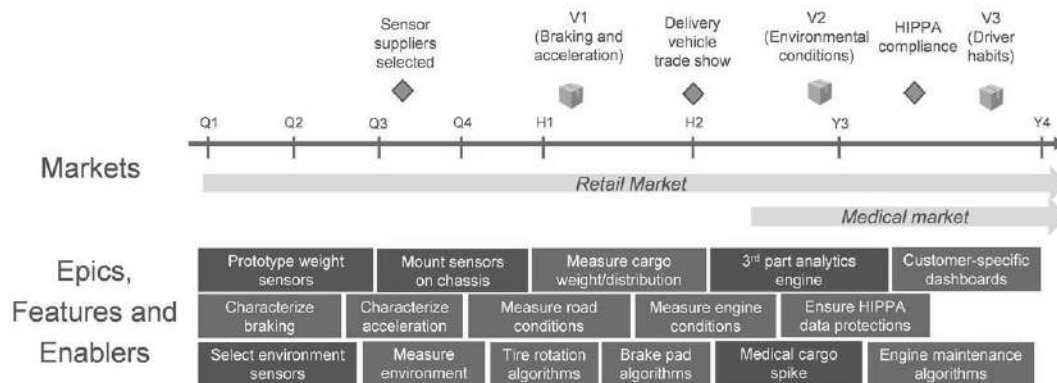
2.3 Forecast work through Roadmaps

Roadmaps link strategy to tactics



Notes:

Solution Roadmaps provide a longer-term view

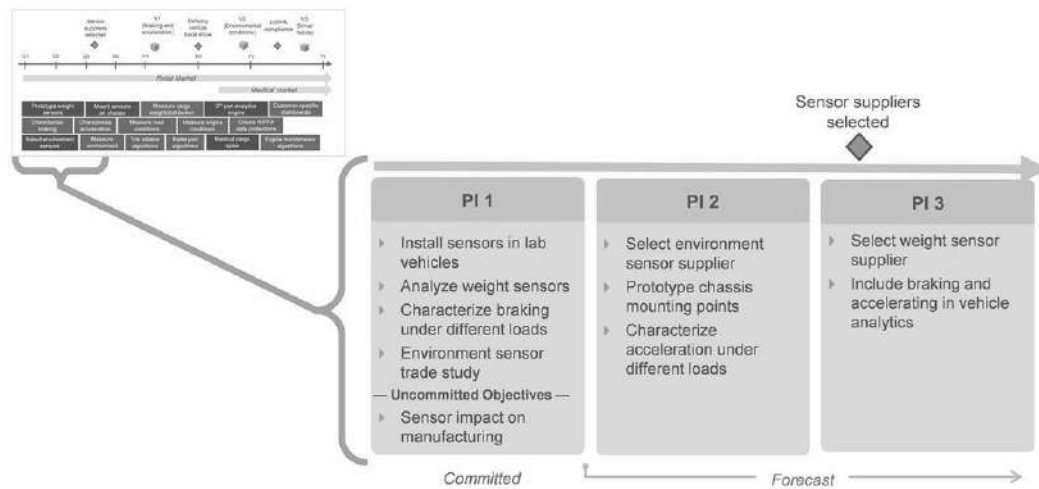


Note that the timeline changes: as we forecast further into the future, fidelity decreases

Notes:

2.3 Forecast work through Roadmaps

PI Roadmaps are shorter-term with more fidelity



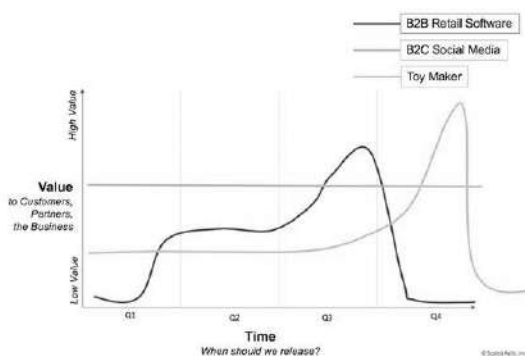
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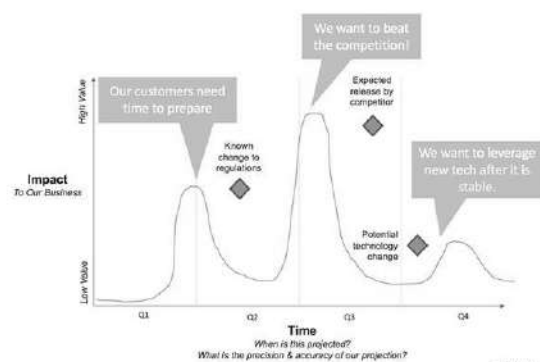
Notes:

What are market rhythms and market events?

Market rhythms are cyclical and predictable



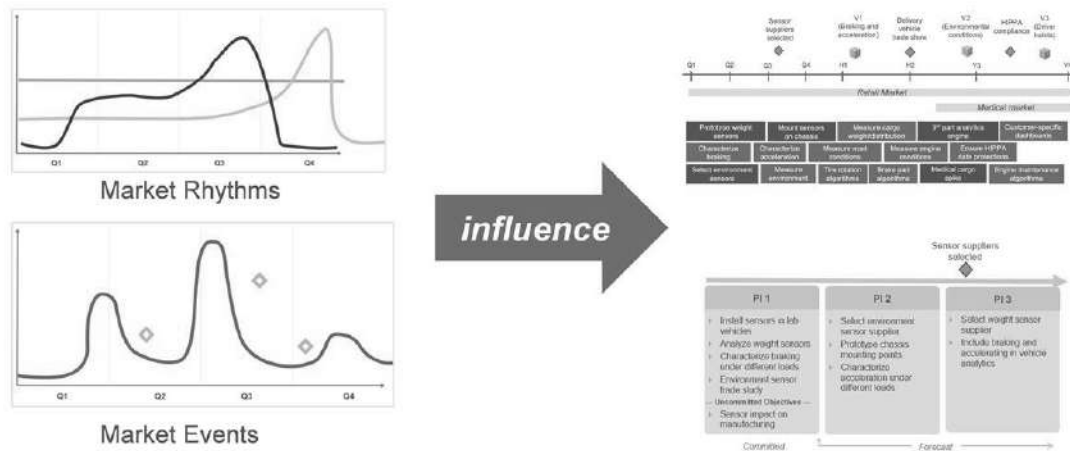
Market events are ad-hoc and often predictable



Notes:

2.3 Forecast work through Roadmaps

Solution and PI Roadmaps are influenced by external factors




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Notes:

2.3 Forecast work through Roadmaps



Activity: Consider market rhythms for optimum release timing

Prepare
5 min

Share
10 min

- ▶ 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 required by the Van Maintenance Advisor.
- ▶ Approximately 1/3 of your van customers are serving the the local retail market while 1/3 are serving the medical specimen market.
- ▶ Draw a market rhythms chart with one line for each market segment to help determine when you could release the new hardware to minimize disruptions to your customers.

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Notes:

2.4 Create beneficial Features

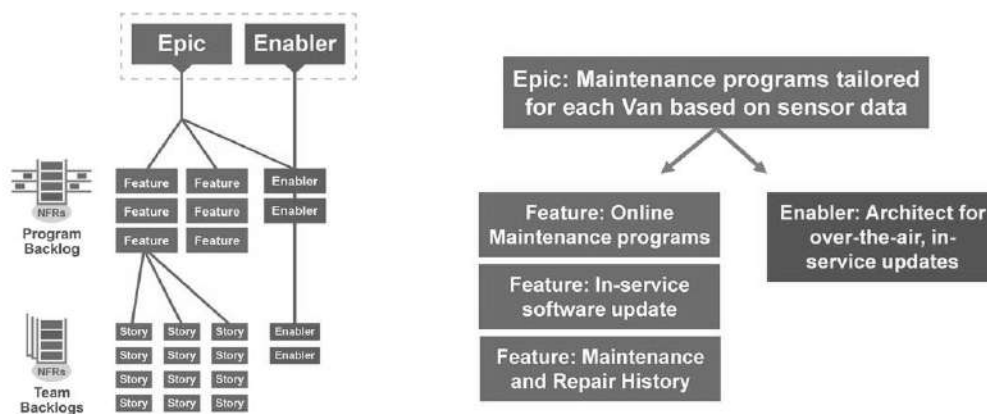
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Notes:

Epics are decomposed into Features

Additional Features and Enablers...



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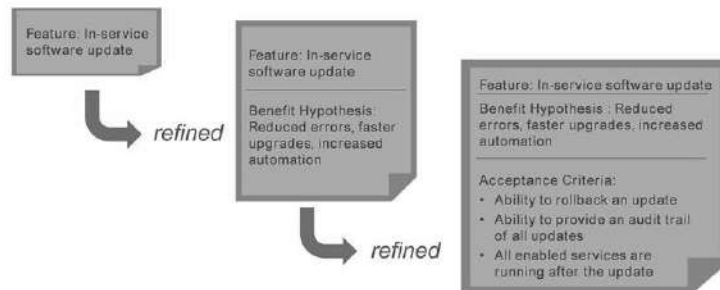
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Notes:

2.4 Create beneficial Features

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



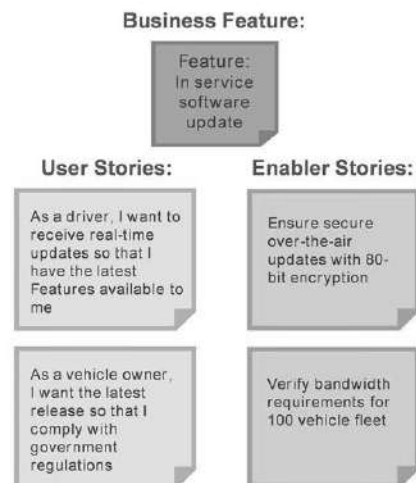
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Notes:

Features are implemented incrementally by Stories

- ▶ During PI Planning and Backlog Refinement, Features are refined into Stories
- ▶ Stories are short descriptions of desired functionality, written in the user's language and sized to fit a single iteration for one team



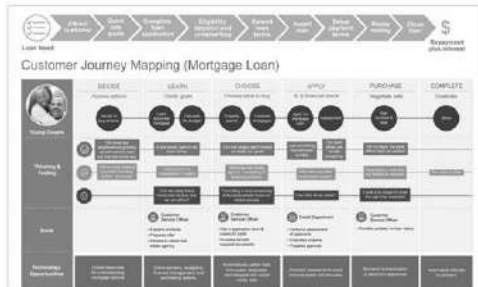
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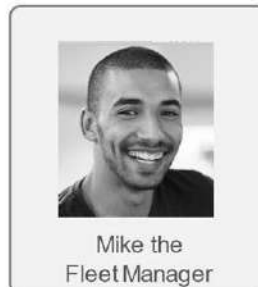
Notes:

2.4 Create beneficial Features

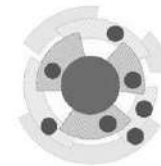
Design Thinking tools support PMs and POs in creating Features



Customer Journey Maps



Personas



Whole-Product Thinking

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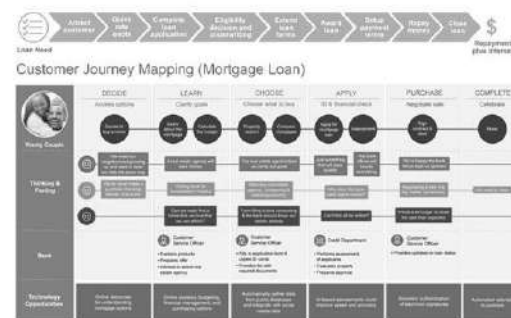
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Notes:

Customer journey maps can inform operational Value Streams

Customer journey maps:

- ▶ Illustrate the user's experience engaging with a company through products, online experiences, and services
- ▶ May document user desires, activities, feelings, questions, pain points, etc.
- ▶ Can help identify gaps and opportunities



Journey Maps help design operational Value Streams

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Notes:

Personas help understand Customers

Personas:

- ▶ Are fictional characters based upon your research
- ▶ Represent the different people who might use your product or Solution in a similar way
- ▶ Convey the problems Customers face in their own context (e.g. their work environment) and key triggers for using the product
- ▶ Capture rich, concise information (photographs, family stories, jobs, etc.) that inspire great products without unnecessary details

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Notes:

Example persona



Mike the Fleet Manager

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

"I started my own courier van service when I was 18. I did everything – delivery, managing the vehicles and handling customers. During the last recession I had to shut down my company – but that's OK, because I was getting tired of working alone. I'm now the Fleet Manager for big company. Driver safety is my top priority."

I have an office but I'm in constant motion – my tablet is more useful than my desktop computer.

I used to be a driver and driver safety is a personal priority.

My vans need to be on the road – a van in the shop doesn't make me any money!

I need to be able to respond quickly to emergencies.

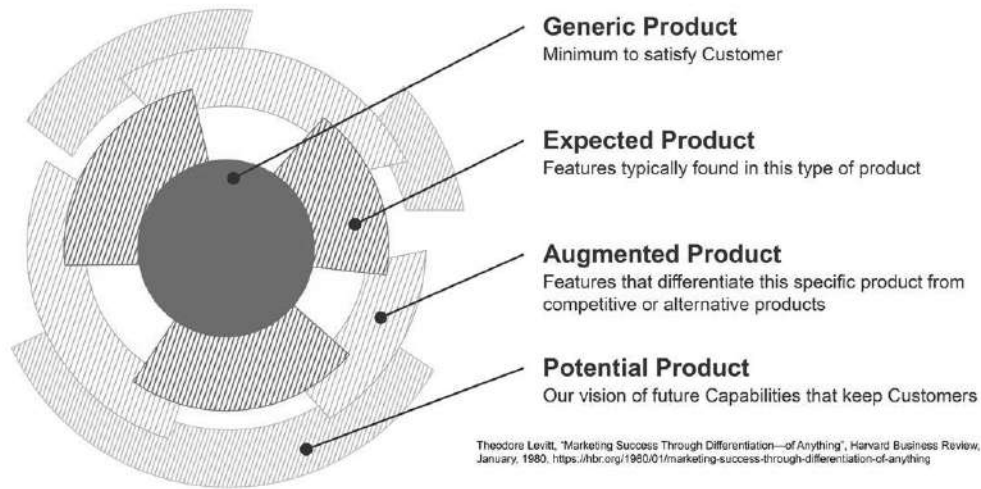
Reno weather is hard on vans. I think my maintenance schedule is better than what TTC recommends.

I learned Spanish and some Vietnamese to better communicate with my drivers.

Notes:

2.4 Create beneficial Features

Whole-product thinking creates a compelling reason to buy



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Notes:

Define the whole product's operational environment

Product Managers identify, account for, and design critical aspects of the operational environment for a Solution on a segment-specific basis, often in collaboration with other stakeholders (Architects, legal, operations, etc.).

Development Value Stream

Solution


Solution Context



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Notes:



Discussion: Solution Context

Duration
10 min

What are some critical aspects of the Solution Context of the hardware and software contained within the Courier Van that provides the data for the Van Maintenance Advisor?

What are some critical aspects of the Solution Context of how Fleet Managers will use the Van Maintenance Advisor?

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Notes:

Feature storming is a tool for decomposing Epics into Features

Here is a suggested process for decomposing Epics into Features:


1. Identify an Epic to be decomposed and assemble a team of PMs, POs, Technical Leaders, and members of the ART
2. Write the Epic on a piece of paper and tape it to the wall
3. Hand out blank index cards to all participants and have them rapidly generate as many Features in the context of this Epic as possible (just a name and, if needed, a brief description)
4. Organize results by merging duplicates and arrange them into clusters. The results will be managed in the Program Kanban.

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Notes:

2.4 Create beneficial Features



Activity: Decompose an Epic using Feature storming

Prepare
10 min

Share
5 min

- ▶ Working at your tables, decompose this Epic by creating as many Features as possible
 - Leverage the Mike the Fleet Manager persona and Solution Context to help create a more complete set of Features


Epic
Maintenance programs tailored for each van based on sensor data

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Notes:

2.4 Create beneficial Features



Activity: Feature refinement

Prepare
10 min

Share
5 min

- ▶ Take three of the Features that you have created. Using a flip chart, refine them with a description, benefits hypothesis, and acceptance criteria.
- ▶ Who is the primary beneficiary of acceptance criteria?





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Notes:

2.4 Create beneficial Features

Set quality expectations with the definition of done (DoD)

 Team Increment	 System Increment	 Solution Increment	 Release
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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

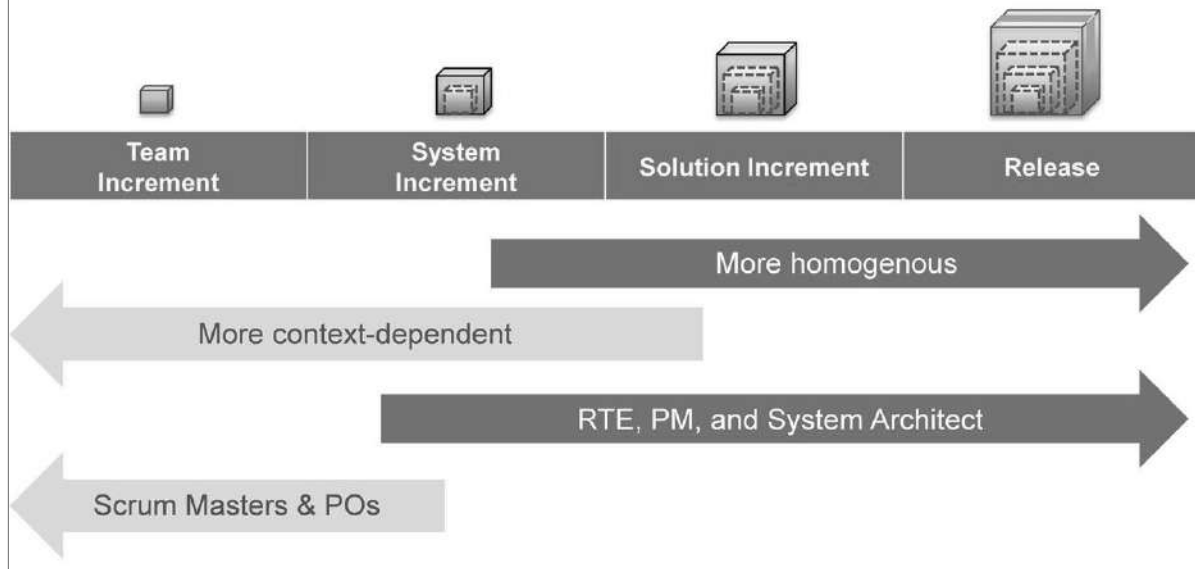
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Notes:

ART definition of done



Notes:

2.4 Create beneficial Features

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 <ul style="list-style-type: none">▶ Stories satisfy acceptance criteria▶ Unit and acceptance tests pass	Example <ul style="list-style-type: none">▶ All code checked into version control▶ API and/or data model documentation updated	Example <ul style="list-style-type: none">▶ Releases notes created for marketing and sales▶ User documentation updated▶ Website FAQs updated

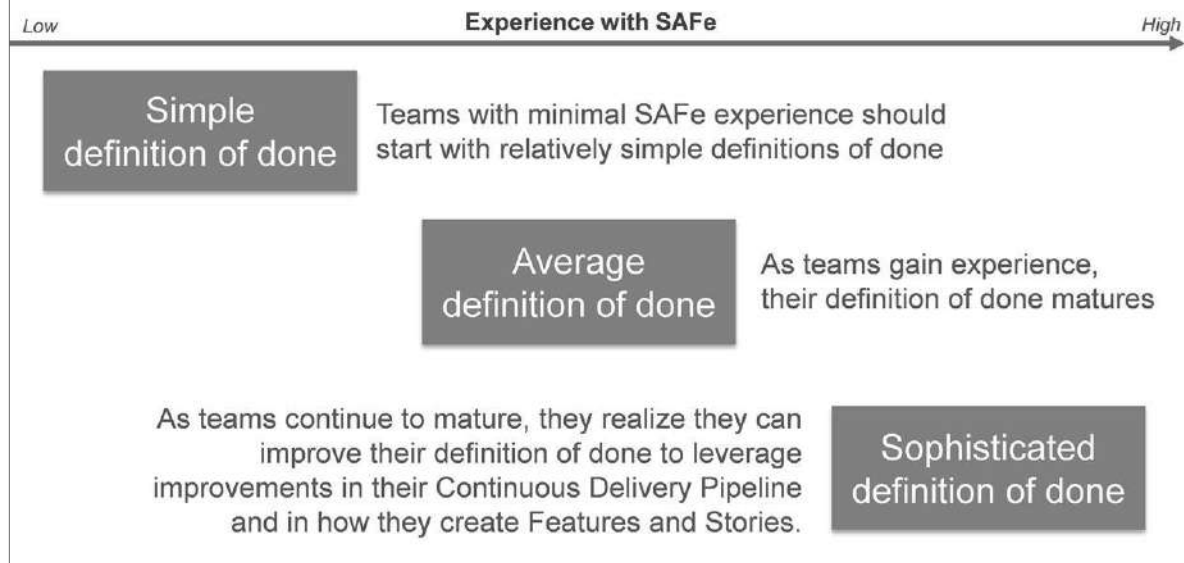
- ▶ Acceptance criteria focus on specific characteristics of a Feature or Story
- ▶ DoD is about policies that apply across Features or Stories

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Notes:

The definition of done is NOT static



Notes:

2.5 Manage the Program Backlog and Kanban

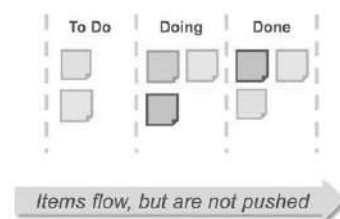
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Notes:

Kanban in a nutshell

- ▶ Visual tool for monitoring and managing workflow
- ▶ Columns represent steps in the work process
- ▶ Work items (Features, Enablers, Stories) are 'pulled' 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

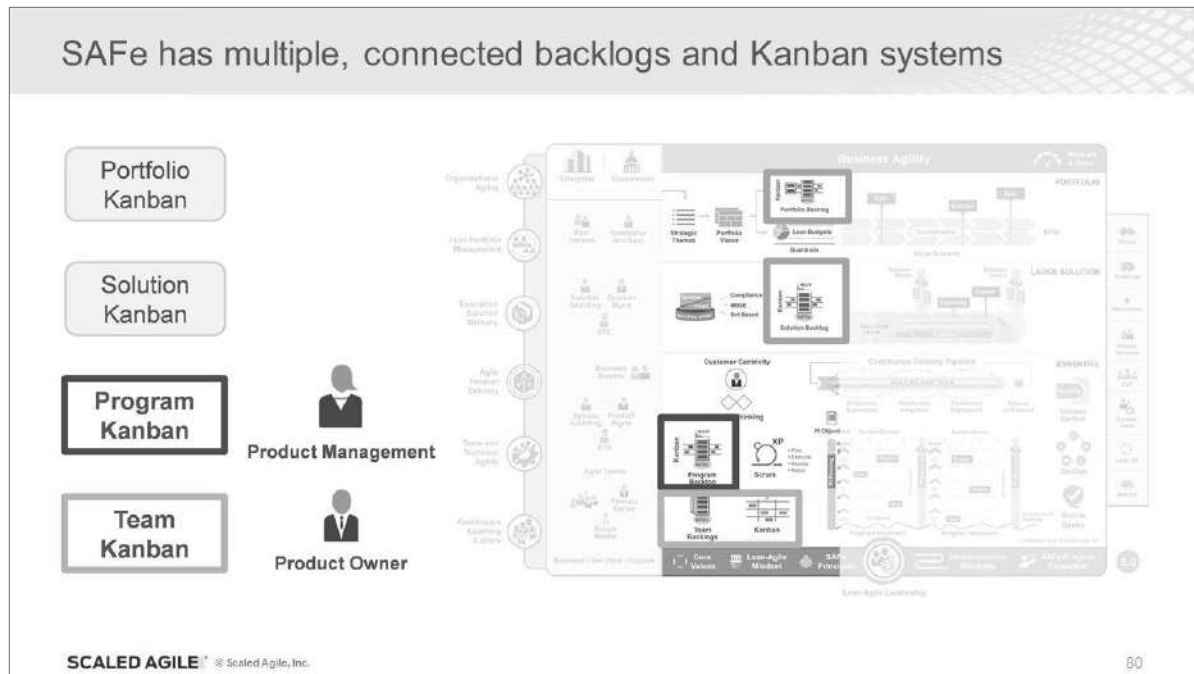


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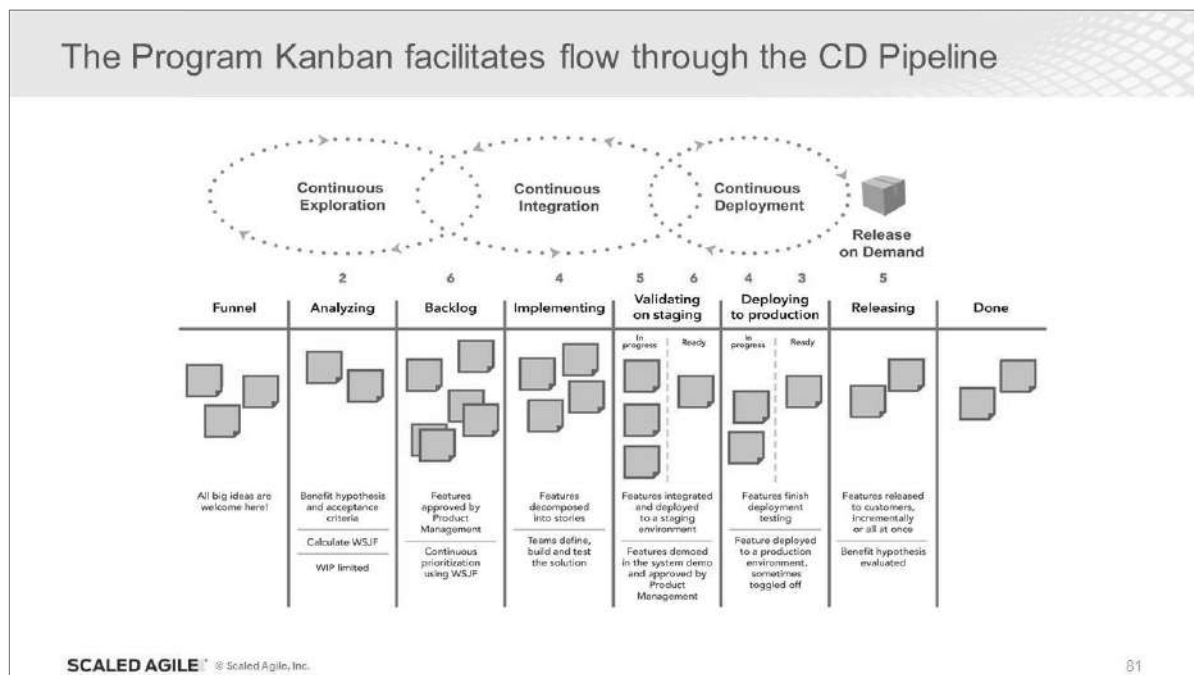
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Notes:

2.5 Manage the Program Backlog and Kanban



Notes:



Notes:

Prioritization anti-patterns



HiPPo - 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 - Making a decision based exclusively on ROI without considering other factors.

"The ROI indicates we will make a 30% profit."

Role

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



Solution/Product Management

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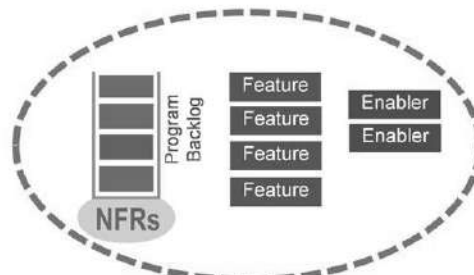
Notes:

Prioritize Features for optimal return on investment

In a flow system, job sequencing by Product Owners and Product Managers is key to economic outcomes.

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

1. What is the cost of delay (CoD) in delivering value?
2. What is the cost to implement the valuable thing?



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

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Notes:

2.5 Manage the Program Backlog and Kanban

Example with equal CoD: Which job first?

A \$\$, 1 day

B \$\$, 3 days

C \$\$, 10 days

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Notes:

Example with equal duration: Which job first?

A \$\$\$, 3 days

B \$\$, 3 days

C \$, 3 days

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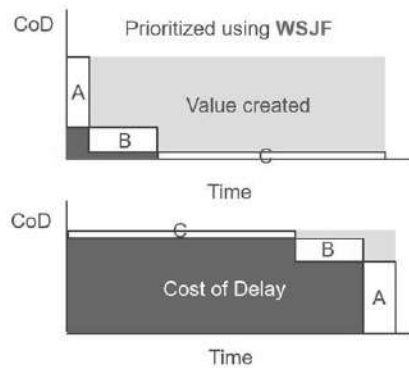
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Notes:

2.5 Manage the Program Backlog and Kanban

General case: Any CoD and duration

In the general case, give preference to jobs with shorter duration higher CoD and, using weighted shortest job first (WSJF):



$$\text{WSJF} = \frac{\text{Cost of Delay}}{\text{Job Duration (Job size)}}$$

Feature	Duration	CoD	WSJF
A	1	10	10
B	3	3	1
C	10	1	0.1

- Dark area: total cost of delay
- Light area: total Value Delivered

Adapted from *The Principles of Product Development Flow*, Donald G. Reinertsen

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Notes:

Components of cost of delay

User and business value



Relative value to the Customer or business

- ▶ What do they prefer?
- ▶ What is the revenue impact?
- ▶ Are there potential penalties or other negative impacts?

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 & Opportunity enablement (RR & OE)



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?
- ▶ Will it enable new business opportunities?

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Notes:

Calculate WSJF with relative estimating

In order 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, System Architects

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


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Notes:

2.5 Manage the Program Backlog and Kanban



Activity: Prioritizing the Program Backlog

Prepare
5 min

Share
10 min

- ▶ Select three Features from the previous activity and prioritize them using the WSJF template in your workbook
- ▶ Do one column at a time. Start by picking the smallest item and giving it a “1.” There must be at least one number “1” in each column of the template.
- ▶ Be prepared to share your WSJF prioritization.

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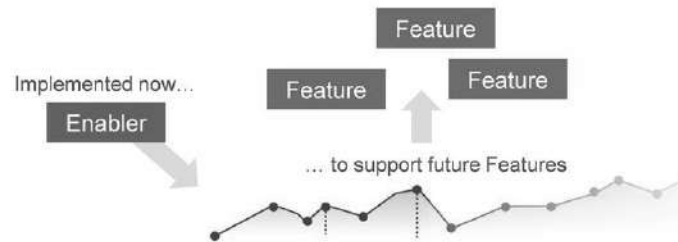
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Notes:

Feature	User- business value	Time criticality	RR OE value	CoD	Job size	WSJF
		+	+	=	÷	=
		+	+	=	÷	=
		+	+	=	÷	=

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



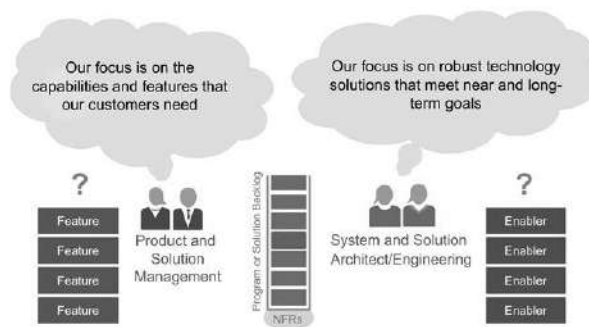
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Notes:

How much architecture?

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



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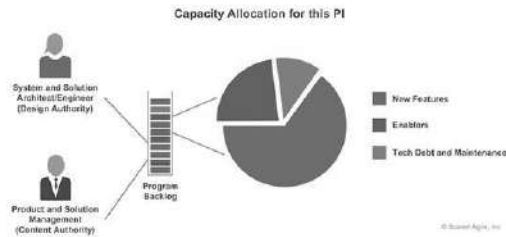
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Notes:

Organize Features by type

Organizing Features by type 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 vs. 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.

Notes:

2.5 Manage the Program Backlog and Kanban



Activity: Draft your capacity allocation policy

Prepare
5 min

Share
10 min

- ▶ Consider how you would use capacity allocation in your Enterprise
- ▶ In your workbook, draft a capacity allocation policy that you could bring back for discussion with your key collaborators
- ▶ Share your policies with a person next to you

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Notes:

Relative estimating

- ▶ Agile Teams use Story points and relative estimating to quickly arrive at size estimates for User 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

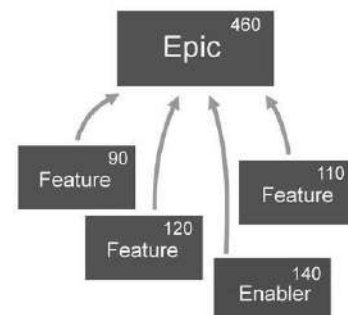
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Notes:

Estimating Epics in SAFe

1. Epics are decomposed into potential Features during PI Planning and backlog refinement
2. Potential Features are estimated in Story points
 - Typically performed at the PM/System Architect level, based on history and relative size
 - Individual teams are engaged as necessary
3. Feature estimates are aggregated back into the Epic estimate as part of the lightweight business case



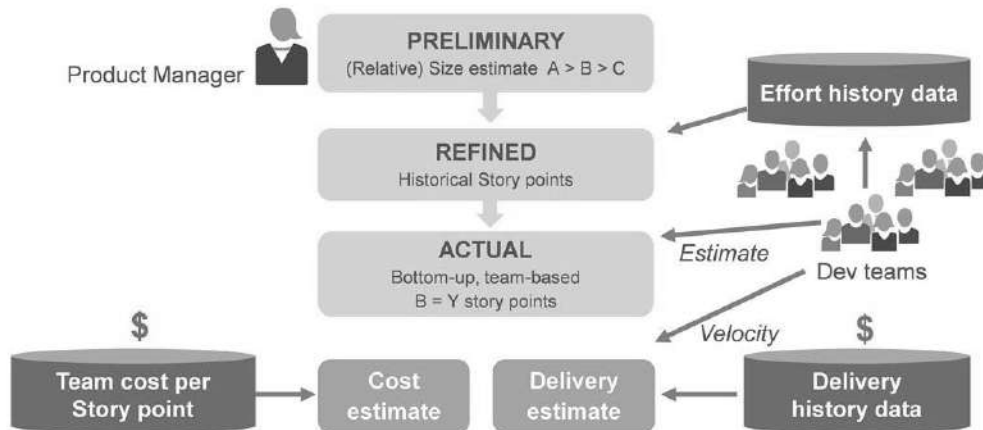
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Notes:

Estimating Features

Estimating the effort needed to implement a Feature typically goes through a series of successive refinements.



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Notes:

Estimating cost

Once the Feature has been estimated in Story points, a cost estimate 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 per Iteration**, then each Story point costs **~\$1,000***



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Notes:



Action Plan: Preparing for PI Planning



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 and a whole product model to assist your ART in developing Features?



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Notes:

Lesson review

In this lesson you:

- ▶ Reviewed Program Increments
- ▶ Explored how POs and PMs create and utilize the Vision
- ▶ Discovered how to forecast work through Roadmaps
- ▶ Practiced creating beneficial Features
- ▶ Reviewed how to manage work through the Program Backlog and Kanban

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Notes:

Lesson 3

Leading PI Planning

Learning Objectives:

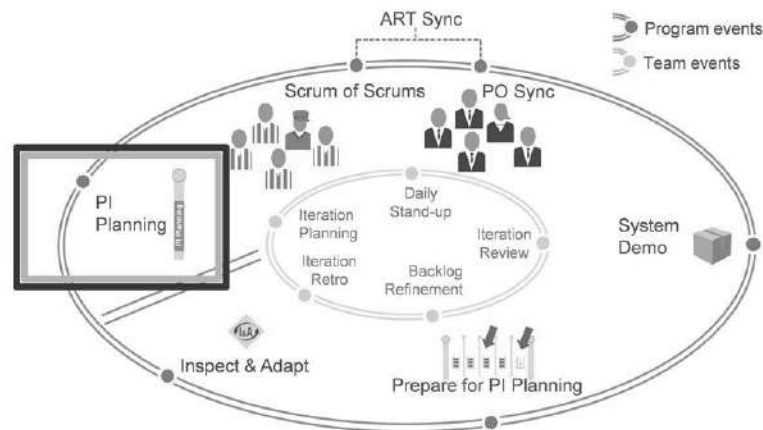
- 3.1 Communicate the Vision
- 3.2 Establish PI Objectives
- 3.3 Manage dependencies
- 3.4 Manage risks



SAFe Authorized Course - Attending this course gives students access to the SAFe Product Owner/Product Manager exam and related preparation materials

Leading PI Planning

PMs and POs have key roles in PI Planning.

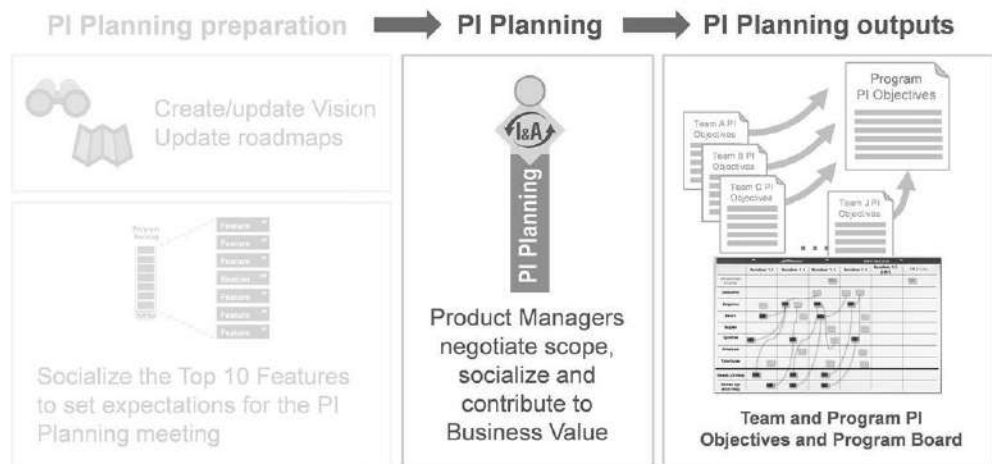


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Notes:

PMs and POs are essential to successful PI Planning



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Notes:

PI Planning two-day agenda

Day 1 Agenda		Day 2 Agenda	
8:00-9:00	Business Context	8:00-9:00	Planning Adjustments
9:00-10:30	Product/Solution Vision	9:00-11:00	Team Breakouts
10:30-11:30	Architecture Vision and Development Practices	11:00-1:00	Final Plan Review and Lunch
11:30-1:00	Planning Context and Lunch	1:00-2:00	Program Risks
1:00-4:00	Team Breakouts	2:00-2:15	Confidence Vote
4:00-5:00	Draft Plan Review	2:15-???	Plan Rework?
5:00-6:00	Management Review and Problem Solving		Planning Retrospective and Moving Forward

Notes:

3.1 Communicate the Vision

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Notes:

What POs and PMs do during PI Planning – Day 1

- ▶ Communicate:
 - Program Vision
 - Present the 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

Day 1

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

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Notes:

3.1 Communicate the Vision

Communicate the Vision

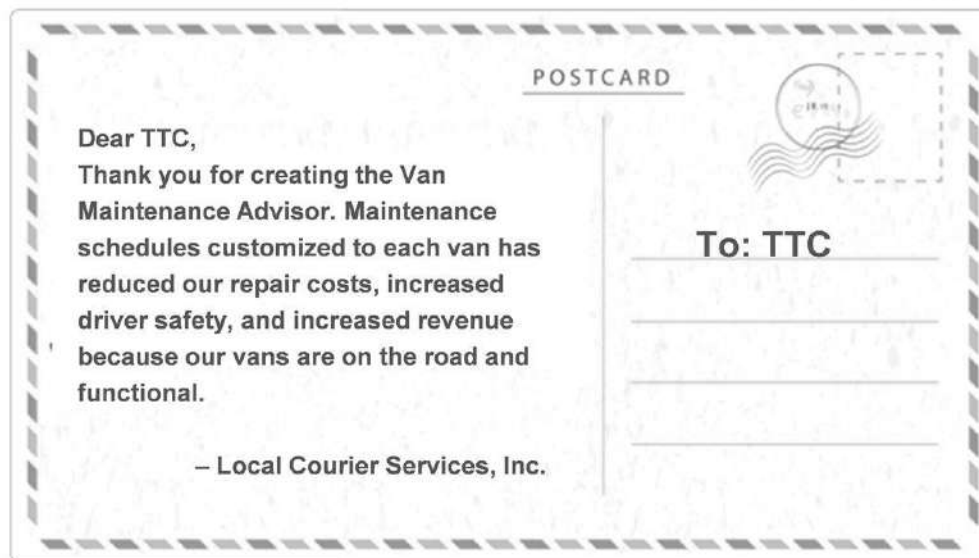
- ▶ Show the ART how the Vision aligns with Strategic Themes
- ▶ Prepare materials so that each team can see the Vision
- ▶ Provide user personas to illustrate how the Program Vision improves the lives of your Customers
- ▶ Explain the purpose of any nonfunctional requirements
- ▶ Map Vision to Strategic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

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Notes:

TTC Van Program Vision



Notes:

3.1 Communicate the Vision

Communicate the Roadmap

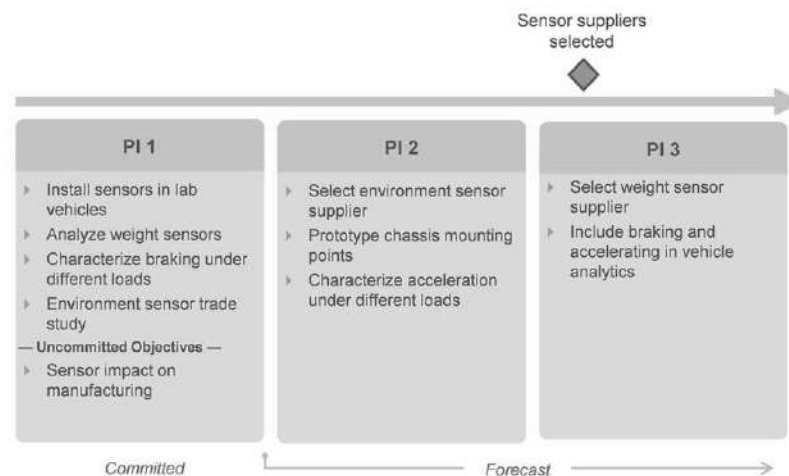
- ▶ The PI Roadmap illustrates how the work in this PI helps fulfill the Vision
- ▶ Communicate the PI Roadmap as part of your Vision to assist in PI Planning activities
- ▶ Highlight Program Epics, Milestones

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Notes:

TTC Van Program PI Roadmap



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Notes:

Communicate the top ten Features

- ▶ Communicate the top ten Features to the ART
- ▶ These should be **no** surprises as teams should have seen these evolve over time
- ▶ Be prepared to explain *why* these Features were chosen (a SAFe Core Value is transparency)
- ▶ Socializing Features before PI Planning helps Product Management develop “right-sized” Features
- ▶ Top ten is a **guideline**; sometimes the ART may pull more than ten Features, sometimes less

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Notes:

TTC Van Program top ten Features

Program Backlog spreadsheet

	Item	Priority	WSJF	Value	Cost	ROI
	1	1	1	1	1	1
	2	2	2	2	2	2
	3	3	3	3	3	3
	4	4	4	4	4	4
	5	5	5	5	5	5
	6	6	6	6	6	6
	7	7	7	7	7	7
	8	8	8	8	8	8
	9	9	9	9	9	9
	10	10	10	10	10	10

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

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Notes:

3.1 Communicate the Vision



Activity: Communicate the Vision

Prepare
10 min

Share
15 min

- ▶ Use the TTC Van Program Vision, PI Roadmap, and top ten Features to communicate the Van Program Vision to your ART as a Product Manager.
- ▶ Deliver your Vision to the ART. Be creative.

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Notes:

Support team breakouts

- ▶ Team breakout time is when Agile Teams “do the work” of 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

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Notes:

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, which are presented at the start of Day 2.



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Notes:



Discussion: Addressing issues during management review and problem-solving



- ▶ During PI Planning, the team working 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 this issue?
- ▶ Some tactics that can help resolve issues:
 - Change priorities
 - Adjust Vision
 - Change scope
 - Move people

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Notes:

3.2 Establish PI Objectives

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Notes:

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, rework (if applicable), and contribute to planning retrospective

Day 2

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

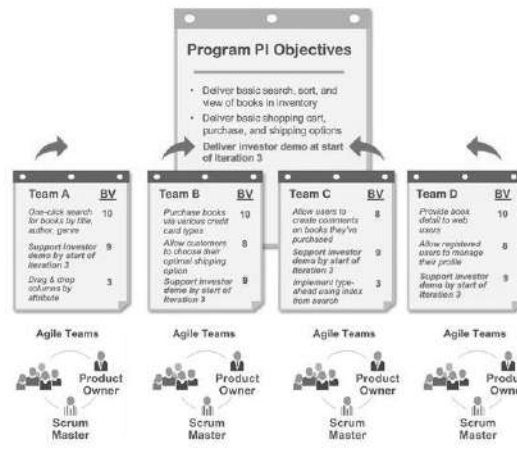
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Notes:

PI Objectives

- ▶ 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
- ▶ PI Objectives are built largely bottom-up as the teams estimate and identify them during PI Planning
- ▶ PI Objectives should reflect what is important to the business as well as other stakeholders



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Notes:

Why do we use PI Objectives?

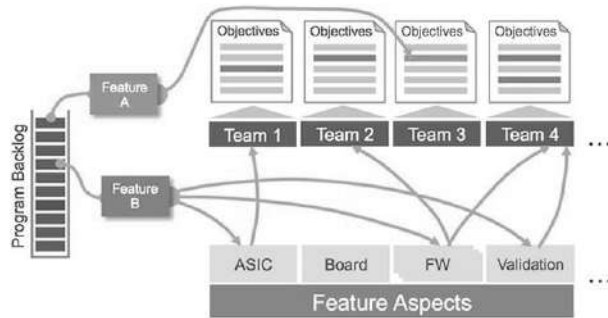
- ▶ **Immediate Feedback:** Team PI Objectives provide confirmation to business leaders that teams understand desired outcomes
- ▶ **Decentralized Decisions:** The business value of the team PI Objectives promote decentralized decision-making, should the team need to adjust planned work
- ▶ **Predictability without Specificity:** Committing to PI Objectives instead of a specific Feature or Story enhances Agility as it allows the team and the PO 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 objectives

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Notes:

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 as well.

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Notes:

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 can these change

Write SMART Objectives:

S	Specific	Intended outcome, start with action verb
M	Measurable	Descriptive, Y/N, quantitative, a range
A	Achievable	Within a team's control
R	Realistic	Recognize factors that can't be controlled
T	Time bound	Can be accomplished within the PI

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Notes:

Committed and uncommitted objectives

- ▶ *Uncommitted objectives* are used by teams to identify planned work that they have low confidence of completing
- ▶ They help improve the predictability of delivering business value since they are not included in the team's commitment and they do not count toward the team's program predictability measure

Team A PI Objectives		BV
■ Proof of concept with mock sounds		10
■ Help with radar POC		4
■ Decide to create or buy engine noises		3
Uncommitted		
■ Proof of concept with real sounds		7

It is prudent to allocate 10-15 percent of team capacity to uncommitted objectives.

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Notes:

Assigning business value during the second team breakout

Team A PI Objectives		BV
■ Proof of concept with mock sounds		10
■ Help with radar POC		4
■ Decide to create or buy engine noises		3
Uncommitted		
■ Proof of concept with real sounds		7

- ▶ *Business value* (BV) is a ranking supplied by the business that represents the importance of delivering each PI Objective
- ▶ PI Objectives and business value help teams stay focused on the delivery of value instead of the delivery of specific Features or Stories
- ▶ Actual BV is assessed during Inspect and Adapt

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Notes:

Considerations when assigning business value

Consideration	Description
Regulatory Value	Legal or infrastructure functionality which, if not deployed, can result in fines, revenue loss, or damage to the Enterprise brand
Commercial Value	Product/service functionality that brings new 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, POCs (proof of concepts), research spikes

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Notes:

3.3 Manage dependencies


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Notes:



Video: The Program Board





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<https://vimeo.com/355401474/4ed0fa500e>

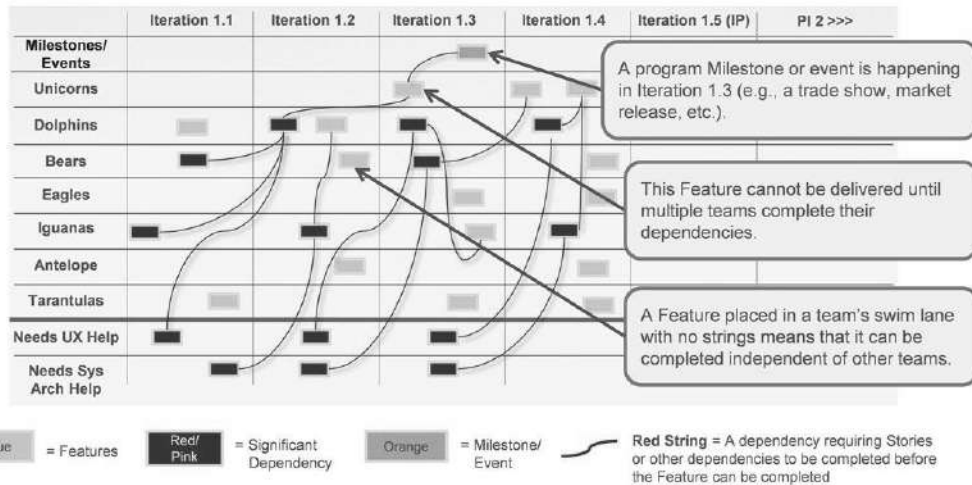
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Notes:

3.3 Manage dependencies

Using a program board to visualize work



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Notes:

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

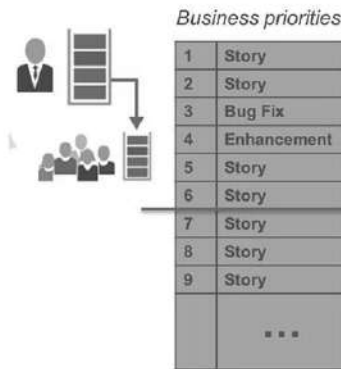
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Notes:

PI Planning can create options for releasing sooner

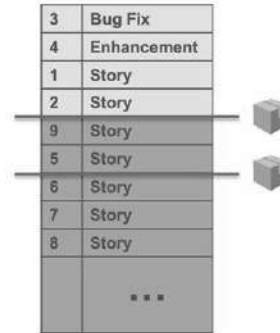
Before PI Planning...



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 (e.g., a major Customer contract may be waiting on early validation from the first Story).

Team analysis



Notes:



Discussion: Identify ways to identify dependency issues and resolve them



- ▶ Review the program board shown in your Student Workbook.
- ▶ What potential issues do you see?
- ▶ Who should the PMs and POs collaborate with to help minimize dependencies and address the issues you identified?

Notes:

3.4 Manage risks

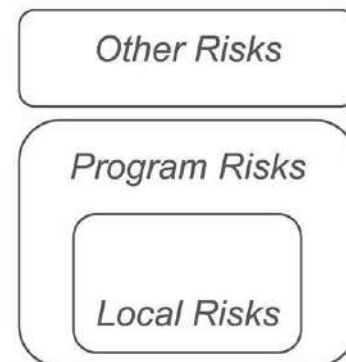
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Notes:

Program, team, and other risks

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



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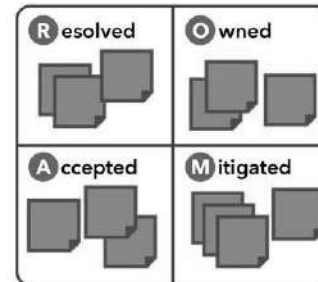
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Notes:

Addressing program risks in PI Planning Day 2

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

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



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Notes:

Building the final plan

- ▶ Final plans are collected at the front of the room and are reviewed by all teams
- ▶ Business Owners are asked if they accept each team's plan
- ▶ If accepted, the team's plan and program risk sheet are brought to the front of the room and included in the final plan
- ▶ If not accepted, the team removes their plan and continues planning after the review



A team's final plan

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Notes:

Confidence vote: Team and ART

After dependencies are resolved and risks are addressed, a confidence vote is taken from the Team and ART. An average of three or higher is the minimum confidence vote to move forward with the PI commitment.

What happens when people vote a one or a two?

1. If the average confidence is two or lower, adjustments are made; plans are reworked
2. Any person who votes two fingers or fewer should be given time to voice their concern, which might add to the list of risks



No confidence



Little confidence



Good confidence



High confidence



Very high confidence

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Notes:



Action Plan: Leading PI Planning



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?

Notes:

Lesson review

In this lesson, you:

- ▶ Explored how POs and PMs communicate the Vision and support the PI Planning meeting
- ▶ Examined how PI Objectives are developed
- ▶ Discovered how dependencies are managed
- ▶ Explored how to manage risks

Notes:

Lesson 4

Executing Iterations

Learning Objectives:

- 4.1 Apply User Stories
- 4.2 Plan the Iteration
- 4.3 Manage flow with the Team Kanban
- 4.4 Continuously refine the backlog
- 4.5 Participate in the Iteration Review and Retrospective
- 4.6 Support DevOps and Release on Demand



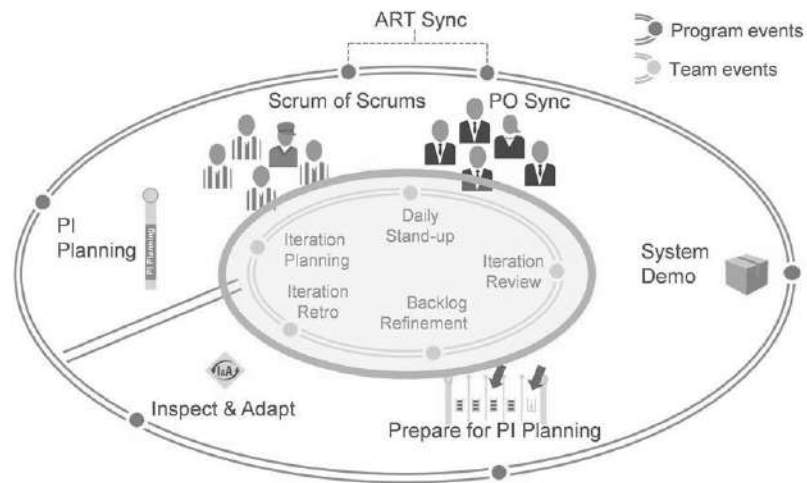
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Iterations are the basic building blocks of Agile development



Product Owner

Product Owners participate in all team events.



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Notes:

Iterations are time-boxed events

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

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

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

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Notes:

4.1 Apply User Stories

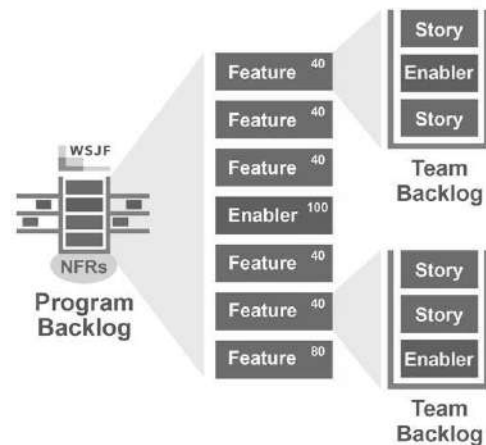
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Notes:

Features are decomposed into User Stories

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



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Notes:

What are User Stories?

Stories are short descriptions of a small piece of desired functionality and are sized so 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

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Notes:

Write User Stories using a standard format

Stories are written using the following template:

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 they can do with the system
- Business value is why they want to do the activity

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


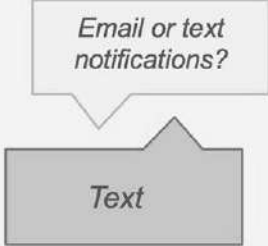
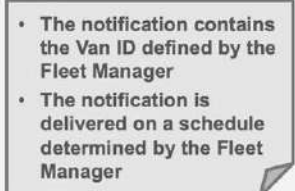
As a Fleet Manager, I want detailed service histories so that I can identify and track safety recalls and confirm repairs.

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Notes:

Writing good user Stories: The 3Cs

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.
 <p>As a Fleet Manager, I want a notification before a van needs service so that I can balance service requests.</p>	 <p>Email or text notifications?</p> <p>Text</p>	 <ul style="list-style-type: none"> The notification contains the Van ID defined by the Fleet Manager The notification is delivered on a schedule determined by the Fleet Manager

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Notes:

INVEST in a good Story

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

I	<u>I</u> ndependent
N	<u>N</u> egotiable
V	<u>V</u> aluable
E	<u>E</u> stimable
S	<u>S</u> mall
T	<u>T</u> estable

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Notes:

4.1 Apply User Stories

Stories strive to convey a 'just right' amount of detail

As a Fleet Manager, I can search for vans so that I can find the van I want.

Insufficient detail

As a Fleet Manager, I can search my fleet so that I can find vans that need a safety recall.

Just right

As a Fleet Manager, I can search for a van by its Vehicle Identification Number, location, or driver so that I can find the van I want.

Overly constrained

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Notes:

Relating Features and Stories to personas improves design



Mike the Fleet Manager

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

"I started my own courier van service when I was 18. I did everything – delivery, managing the vehicles and handling customers. During the last recession I had to shut down."

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

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

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

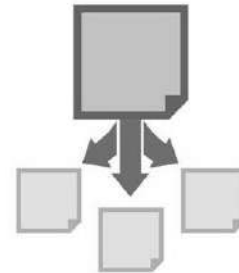
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Notes:

10 patterns for decomposing Features into Stories

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



Notes:



Activity: Decompose Features into Stories

Duration



- ▶ **Step 1:** With your table group, select three Features you created and decompose these Features into Stories
- ▶ **Step 2:** Write these Stories in User Story format:
 - As a (user role) I want (activity) so that (business value).



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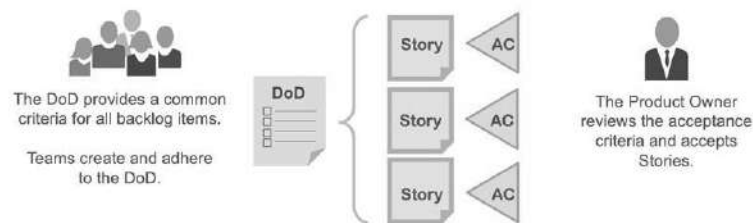
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Notes:

When is a Story complete?

A Story is complete when it:

- ▶ Satisfies the definition of done (DoD) and
- ▶ Is accepted by the Product Owner



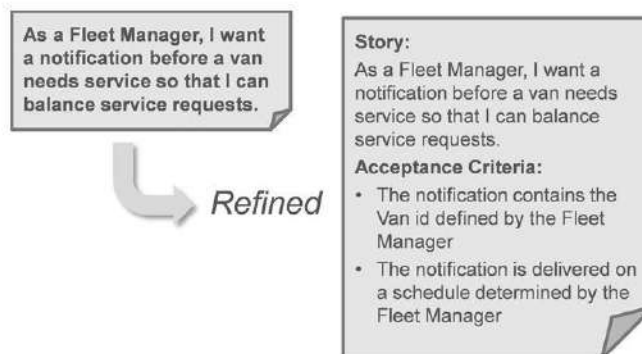
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Notes:

Stories have acceptance criteria

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



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Notes:

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
- ▶ The examples can directly become tests, or they can lead to specific behaviors which then are transformed into tests



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Notes:

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 designed user
```

- ▶ Example of scenario, which can be an acceptance test


- Specific pass/fail, 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
```

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Notes:



Activity: Write acceptance criteria

Prepare
10 min

Share
10 min

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

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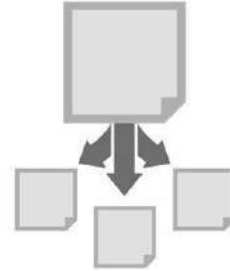
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Notes:

When Stories are too big to fit into an iteration, they are split

Stories are split using the same techniques as decomposing Features

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



Notes:



Activity: Split Stories

Prepare

10 min

Share

10 min

- ▶ Choose a Story from the ones you created that may not fit into an Iteration and, with your table group, split it.
- ▶ How can you ensure that split Stories provide end-user value?

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Notes:

Use story maps to capture workflows

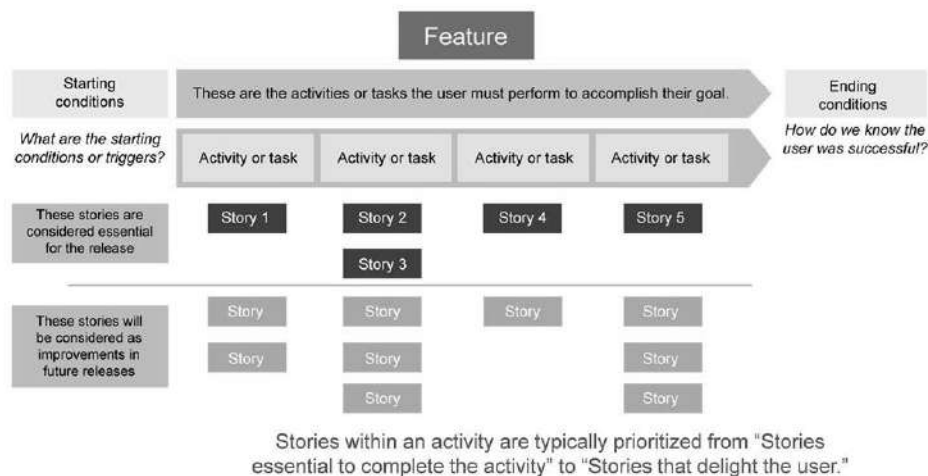
- ▶ A story map is a design thinking tool that captures the workflow of a user and the Stories that support the workflow
- ▶ Story maps help teams
 - Design workflows
 - Manage the improvement of the product over time by showing how successive Stories can improve the Stories
 - Validate that the Stories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

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Notes:

Structuring your story map



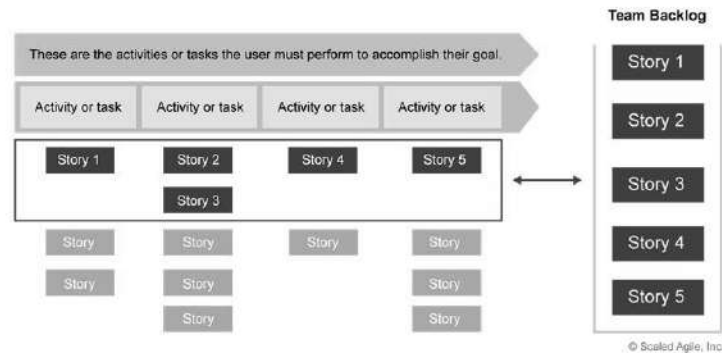
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Notes:

Story maps feed the backlog

- ▶ *Quality*: Each Story in the backlog must be completed with quality
- ▶ *Value*: All the selected Stories in the story map must be completed to create value because if a Story is missed, the user cannot complete her workflow



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Notes:

Example: A large story map for a complex workflow

Story maps can be simple, illustrating just a few steps, or quite large, illustrating many steps.

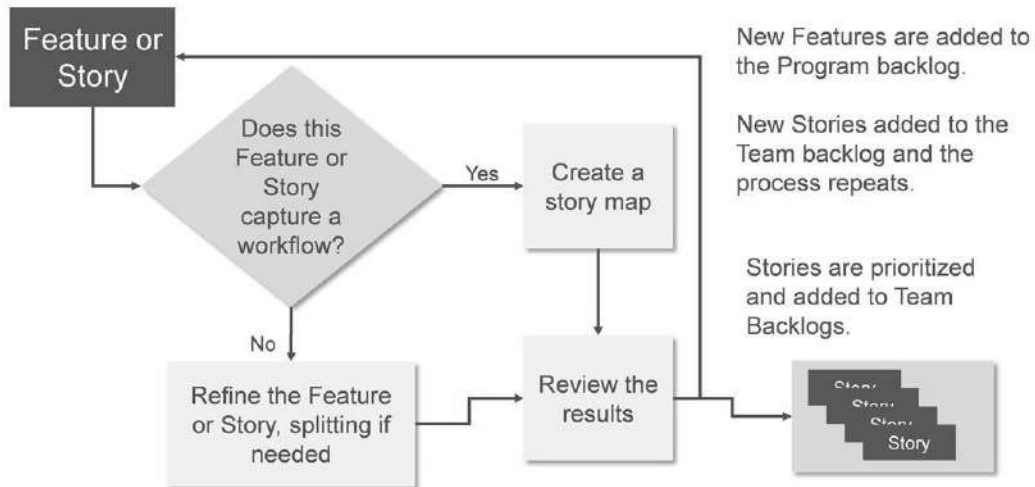


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Notes:

When should you use a story map?



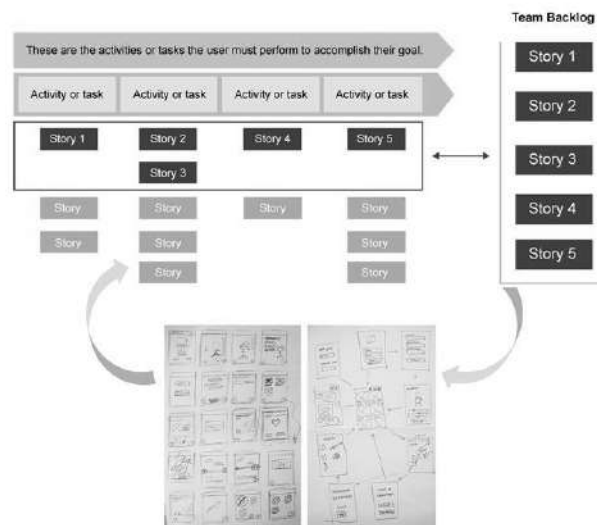
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Notes:

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



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Notes:



Activity: Develop a story map

Prepare
10 min

Share
5 min

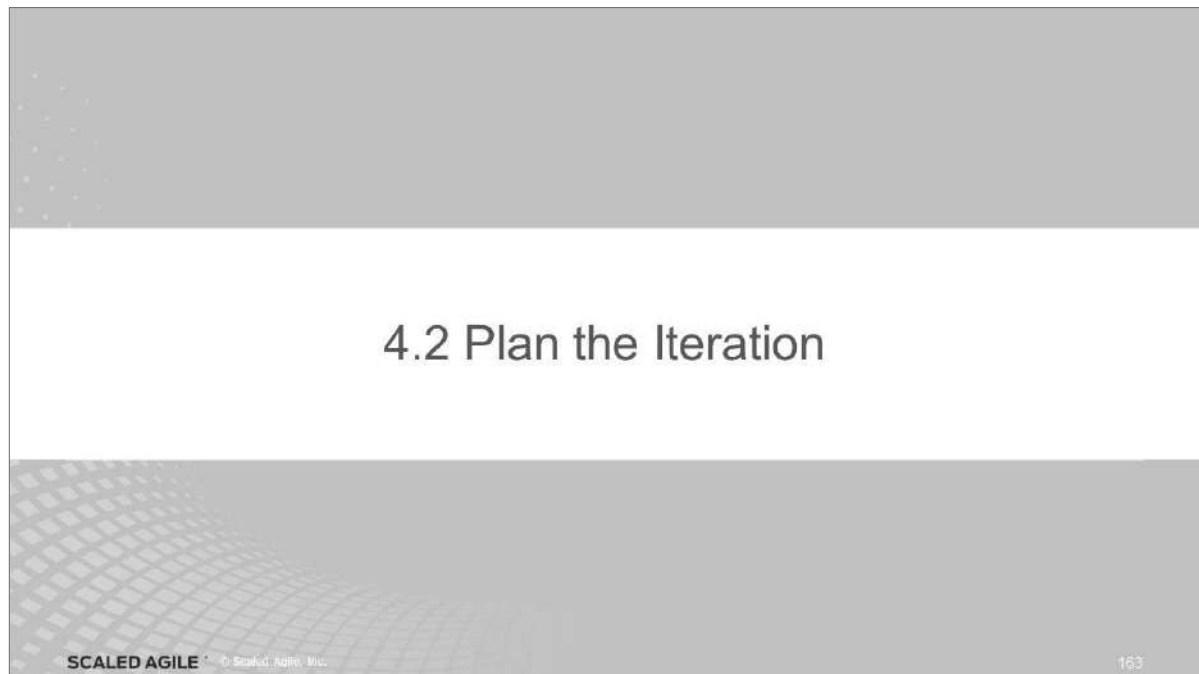
- ▶ Story maps are useful even when there are a small number of steps in the workflow.
- ▶ With your table group, create a story map for this story and answer these questions:
 - What are the main tasks?
 - What is the minimum number of Stories required to accomplish the user's goal?
 - What Stories can make the user's workflow easier?

As a Fleet Manager, I want to add a newly purchased vehicle to my fleet so that I can establish its maintenance schedules and identify any required safety recalls before putting the vehicle into production.

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Notes:



Notes:



Video: Running an effective SAFe Iteration Planning Meeting





Running an Effective
SAFe® Iteration Planning Meeting

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<https://vimeo.com/299054038/ae429609f1>

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Notes:

4.2 Plan the Iteration

Product Owners lead Iteration Planning

Iteration planning refines the Iteration plans created during PI Planning

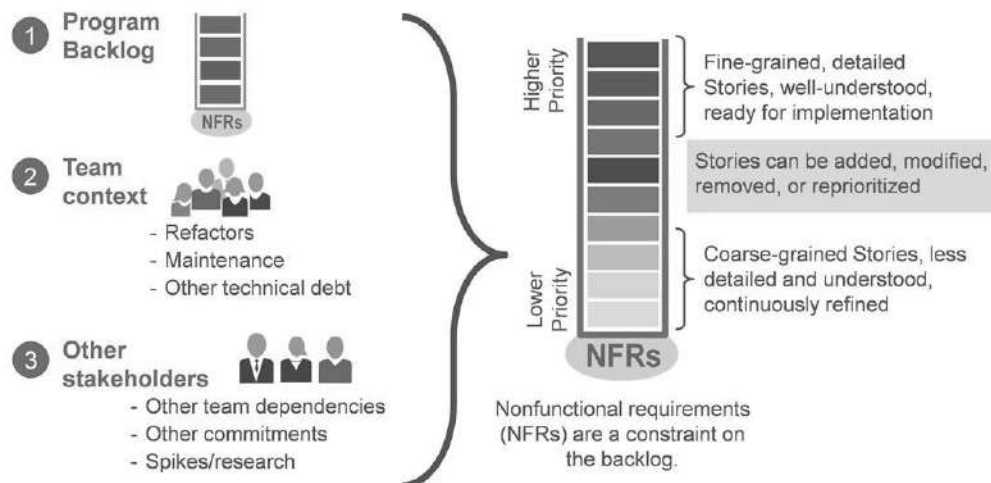


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Notes:

The PO ensures the Team Backlog captures all the work



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Notes:

Sequencing 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

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Notes:

Iteration Planning flow



Iteration Planning

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

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Notes:

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 PO, in collaboration with the team, selects the highest priority backlog items for each 'slice' of the capacity allocation to implement in an Iteration

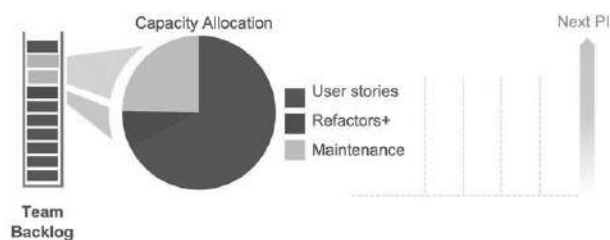
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Notes:

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 PO 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

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Notes:

4.2 Plan the Iteration

Using size to estimate duration

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

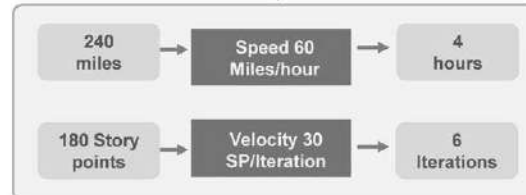
Definition of Velocity

Velocity is the number of story points accepted in the Iteration.

Always use the average velocity for the most recent Iterations.



Examples



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Notes:

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 vacations, etc.

Exclude Scrum Master and Product Owner from the calculation.

Estimated Capacity = 5 X 8 pts = 40 pts/Iteration

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Notes:

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

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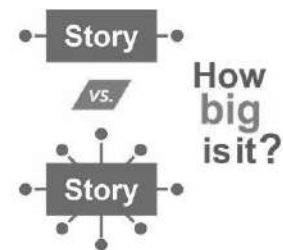
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Notes:

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 hard is it?
 - Knowledge: What do we know?
 - Uncertainty: What's not known?
- ▶ Story points are relative. They are not connected to any specific unit of measure.



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Notes:

4.2 Plan the Iteration

Use Estimating Poker for fast, relative estimating

Steps

- 1 Each estimator gets a deck of cards
- 2 A Story is read
- 3 Estimators privately select cards
- 4 Cards are turned over
- 5 The team discusses differences
- 6 The team re-estimates

Mike Cohn, *Agile Estimating and Planning*, 2005

- ▶ Estimating Poker combines expert opinion, analogy, and disaggregation for quick but reliable estimates
- ▶ All team members participate



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Notes:

PO provides clarification for estimation

Agile Teams estimate Stories; POs provide clarification, but do not estimate the work.

- ▶ Usually occurs during the backlog refinement event
- ▶ Increases accuracy by including all perspectives
- ▶ Builds understanding
- ▶ Creates shared commitment

Estimation performed by a manager, Architect, or select group negates these benefits.



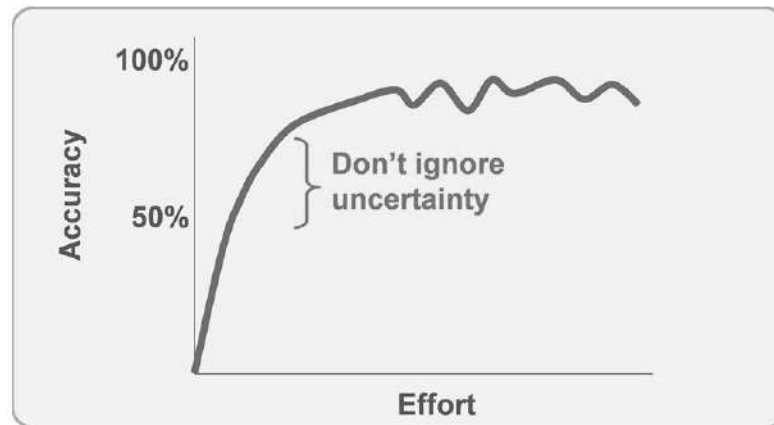
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Notes:

How much time to spend estimating?


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



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Notes:



Activity: Estimate Stories

Prepare
10 min

Share
5 min

- ▶ **Step 1:** With your table group, use the Estimating Poker cards to estimate the Stories you previously created.
- ▶ **Step 2:** Share with the class:
 - Where do you find challenges when engaged in Story estimation?
 - Are you as a team aligned around the combination of qualities that represent a Story point (volume, complexity, knowledge, uncertainty)?

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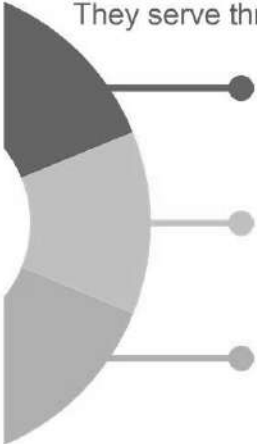
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Notes:

4.2 Plan the Iteration

Iteration goals

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



- Align team members to a common purpose
- Align Program Teams to common PI Objectives and manage dependencies
- Provide continuous management information

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Notes:

Iteration goals: Examples

Software Example	Business Example
<p>Iteration Goals</p> <ol style="list-style-type: none">1. Finalize and push last name search and first name morphology2. Index 80% of remaining data3. Other Stories:<ul style="list-style-type: none">• Establish search replication validation protocol• Refactor artifact dictionary schema	<p>Iteration Goals</p> <ol style="list-style-type: none">1. Roll out the GDPR incident report procedures2. Prepare for external audit3. Obtain approvals for financial report

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Notes:

4.2 Plan the Iteration

Commit to the Iteration goals

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



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Notes:

Tips for effective Iteration planning

Best approaches	Common anti-patterns
Maintain timebox	Delving too deep into technical discussions
Ensure that the team commits to the Iteration goals	Commitment is unrealistic
Verify that the PO or other managers don't influence the team to overcommit	Capacity and load are exactly the same
Challenge the team to exceed their previous accomplishments	Scrum Master is more focused on a technical role than a facilitator's role
Ensure that improvement items from the retrospective are put into effect	The team under commits due to fear of failure
Ensure time is allocated for technical debt activities	No time is reserved for support activities

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Notes:

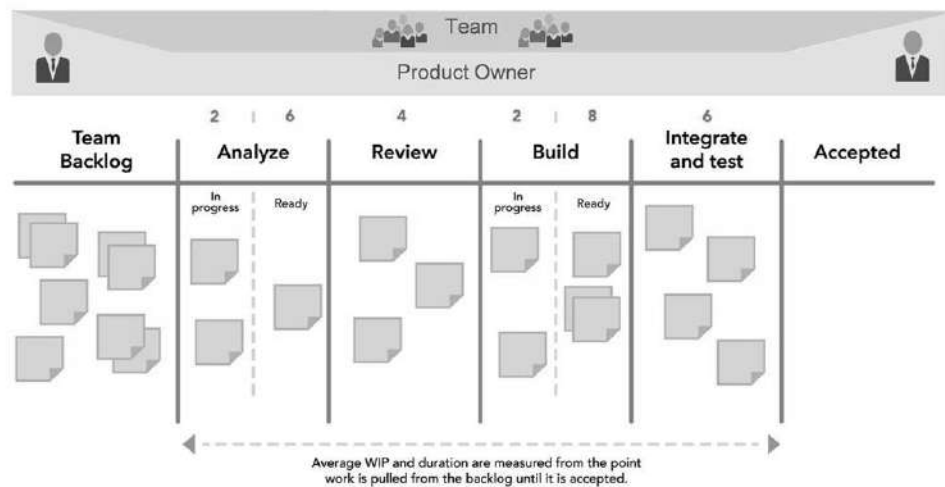
4.3 Manage flow with the Team Kanban

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Notes:

The Team Kanban promotes collaboration and facilitates flow



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Notes:



Video: Running an effective SAFe Daily Stand-up (DSU)

Duration
5 min



<https://vimeo.com/289123257/0de749d63e>

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Notes:

Product Owners and the DSU

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

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Notes:

Tips for managing flow

Best approaches

Facilitate mid-PI re-planning

Encourage the team to point out as early as possible if they think they will miss iteration goals or PI Objectives. Communicate to and from the scrum of scrums

Encourage the use of engineering practices

Make sure defects are not pushed to the IP Iteration

Facilitate preparation for the next PI

Support release activities

Common anti-patterns

Team gets no input from scrum of scrums

Teams are unwilling to change or add objectives mid-PI

Scrum Master does all of the synchronization, so the team is incapable of doing it themselves

Notes:



Discussion: PO'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?

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Notes:

4.4 Continuously refine the backlog

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Notes:

The backlog refinement event

- ▶ Timebox: 1 – 2 hours
- ▶ Helps the team reconsider new Stories prior to Iteration planning
- ▶ Provides time to identify dependencies and issues that could impact the next Iteration
- ▶ Ensures that the PO has a ready backlog for Iteration Planning
- ▶ Agile Team members are in attendance and actively engaged; subject matter experts and other teams' members are invited as needed

Sample Backlog Refinement Event Agenda

1. The PO presents the set of candidate Stories for the next Iteration
2. The team discusses whether the set of candidate Stories should be reduced or increased; Stories are added or removed
3. The PO guides the team through the candidate Stories one by one:
 - a) The team discusses each Story, estimates it, and splits it if necessary
 - b) The PO clarifies or supplements the acceptance criteria
 - c) The team identifies dependencies on other teams
4. Action items are summarized for all Stories that still require external input or action

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Notes:

Tips for more effective backlog refinement

Best approaches	Common anti-patterns
Maintain timeboxes	Arriving to the Iteration with non-ready Stories
Maintain the right level of a deep backlog vs ready backlog for two Iterations	Not doing the backlog refinement consistently
Make sure all the 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	

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Notes:

4.5 Participate in the Iteration Review and Retrospective

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Notes:



Video: How to run an effective SAFe Iteration review meeting

Duration
5 min

How to Run an Effective SAFe® Iteration Review Meeting



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<https://vimeo.com/309353242/e486372f18>

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Notes:

Iteration Reviews measure team progress

Attendees are the team and its stakeholders.

1. How we did on the Iteration

- ▶ Did we meet the goals?
- ▶ Story by Story review

2. How we're doing on the PI

- ▶ Review of PI Objectives
- ▶ Review remaining PI scope and reprioritize if necessary

Notes:

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 for each story, spike, refactor, and NFR
3. Discuss Stories not completed and why
4. Identify risks and impediments
5. Revise Team Backlog and team PI Objectives as needed

Notes:

Confirm completion of all required activities against the DoD

 Team Increment	 System Increment	 Solution Increment	 Release
<ul style="list-style-type: none"> • Stories satisfy acceptance criteria • Acceptance tests passed (automated where practical) • Unit and component tests coded, passed, and included in the Build-Verify-Test (BVT) • Cumulative unit tests passed • Assets are under version control • Engineering standards followed • NFRs met • No must-fix defects • Stories accepted by Product Owner 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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

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Notes:

What to do when a Story isn't done

- ▶ **Split it?** - "Well, now that I see it, 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, and it's still my top priority. Can we finish it in the next iteration?"
- ▶ **Delay it?** - "This 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 it's going to be this hard to build, it's not worth it for me anymore. It's just too expensive to justify the value I'd get."

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Notes:

4.5 Participate in the Iteration Review and Retrospective

Update Metrics during Iteration Review to track progress

Functionality	Iteration 1	Iteration 2	Quality and test automation
# Stories (loaded at beginning of Iteration)			% SC with test available/test automated
# accepted Stories (defined, built, tested, and accepted)			Defect count at start of Iteration
% accepted			Defect count at end of Iteration
# not accepted (not achieved within the Iteration)			# new test cases
# pushed to next Iteration (rescheduled in next Iteration)			# new test cases automated
# not accepted: deferred to later date			# new manual test cases
# not accepted: deleted from backlog			Total automated tests
# added (during Iteration; should typically be 0)			Total manual tests
			% tests automated
			Unit test coverage percentage

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Notes:

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 other Scrum Masters to drive improvement on the ART



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Notes:

4.5 Participate in the Iteration Review and Retrospective



Video: How to Run an Effective SAFe Iteration Retrospective





<https://vimeo.com/289517223/5216eafd10>

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Notes:

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
Communication with remote teams, subject matter experts, etc.
The team's skill set
Preparing and running the demo
Nonfunctional requirements (NFR) testing
More efficient and disciplined design sessions

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Notes:

Iteration Retrospective

- ▶ **Timebox:** 1 to 1.5 hours
- ▶ **Attendees:** Just the Agile Team
- ▶ **Preparation:** Pick 1 – 2 things that can be done better or preserved in the next Iteration. Enter improvement items into the team backlog.

At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly. —Agile Manifesto

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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 we can do better next time?
What can we preserve?

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Notes:

4.6 Support DevOps and Release on Demand


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Notes:



Video: What is DevOps?





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

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Notes:



Video: The Continuous Delivery Pipeline

Duration

5
min

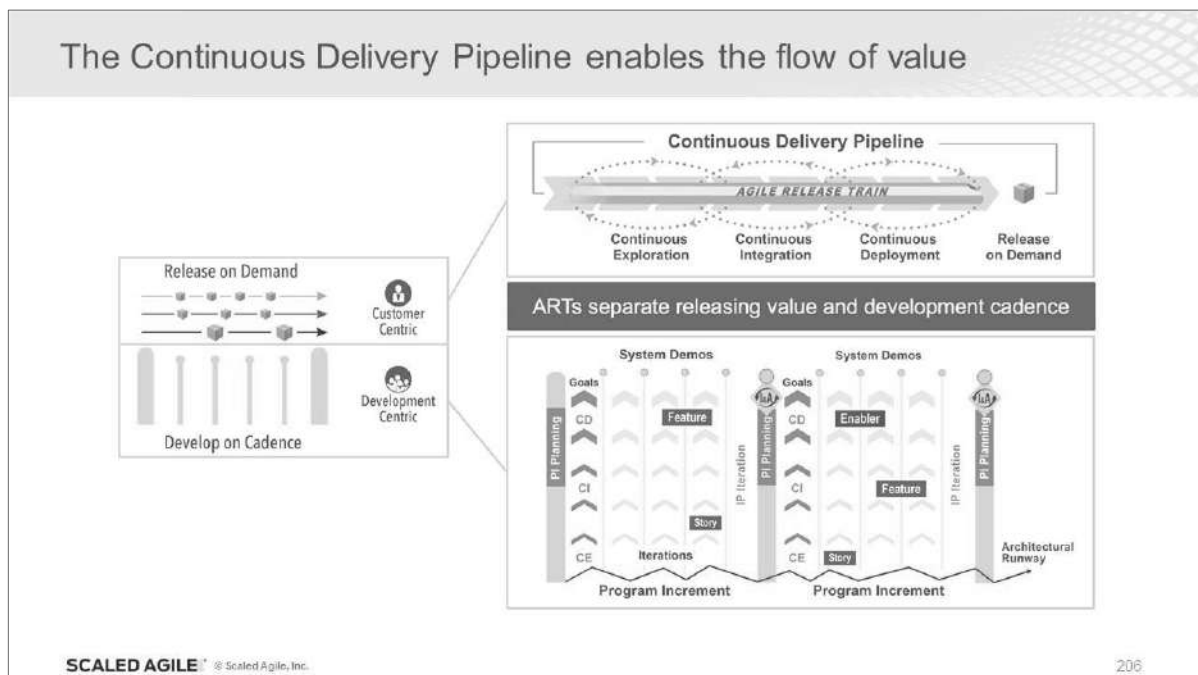


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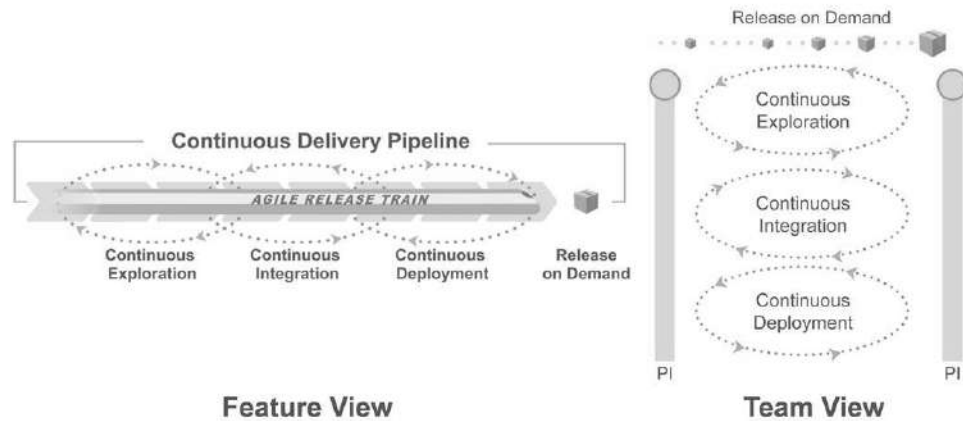
Notes:



Notes:

The Continuous Delivery Pipeline (CDP)

The pipeline is in perpetual motion.



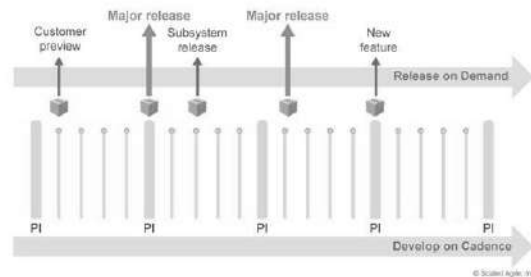
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Notes:

Release on Demand

- ▶ Expose 'dark' Features to Customers based on market readiness
- ▶ Releasing should be low risk, instantaneous, and reversible
- ▶ POs / PMs need to collaborate with Architects to create the appropriate Enablers:
 - Blue/green infrastructure
 - Canary releases
 - Feature toggles
 - A/B testing



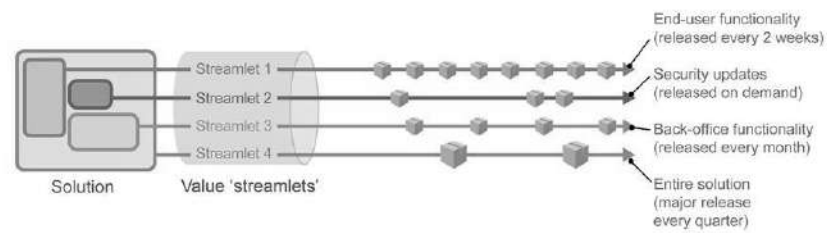
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Notes:

Decouple release elements


- ▶ POs/PMs work with Architects to identify which parts of the Solution may require different release strategies
- ▶ Architects design sub-systems for independent build, test, deploy, and release



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Notes:



Activity: How can you support the CDP?

Duration
8 min

- ▶ The TTC Van Maintenance Advisor is complex Solution that 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?
- ▶ How might the Solution Context for each of these components impact their respective Continuous Delivery Pipelines?

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Notes:



Action Plan: Executing Iterations



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 Stories?
- ▶ Where might you be able to apply story maps?
- ▶ How can you improve your participation in all the Iteration events?

Notes:

Lesson review

In this lesson, you:

- ▶ Explored how to apply User Stories and story maps
- ▶ Reviewed how to plan the Iteration
- ▶ Discovered how to manage flow with the Team Kanban
- ▶ Reviewed how to continuously refine the backlog
- ▶ Explored how POs participate in Iteration Reviews and Retrospectives
- ▶ Discovered how POs and PMs support DevOps and Release on Demand

Notes:

Lesson 5

Executing the PI

Learning Objectives:

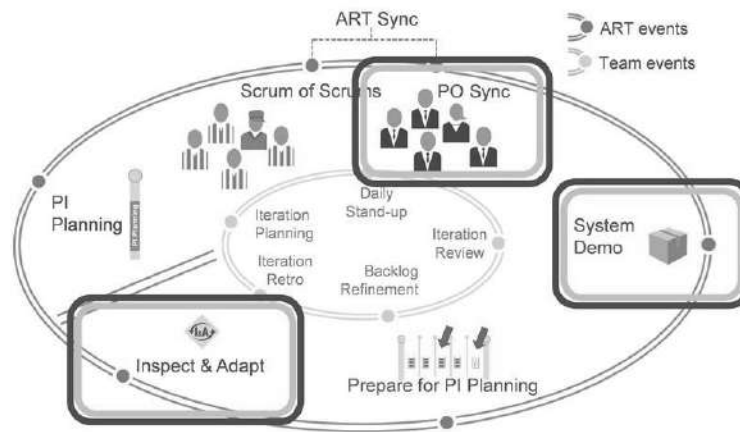
- 5.1 Participate in the PO sync
- 5.2 Participate in the System Demo
- 5.3 Innovate throughout the PI
- 5.4 Inspect and Adapt



SAFe Authorized Course - Attending this course gives students access to the SAFe Product Owner/Product Manager exam and related preparation materials

Executing the PI

POs and PMs remain engaged throughout PI execution.



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Notes:

5.1 Participate in the PO sync

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Notes:


Programs respond to change through sync meetings

- ▶ 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
- ▶ Facilitated by the RTE or Product Management
- ▶ Participants: PMs, POs, other stakeholders and SMEs as necessary
- ▶ Weekly or more frequently, 30 – 60 min.
- ▶ POs communicate adjustments to their teams after the sync

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Notes:



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 PO or PM to ensure alignment across the ART? What kinds of issues and opportunities might you bring up and what kinds of potential solutions might you offer to resolve them?

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Notes:

5.2 Participate in the System Demo

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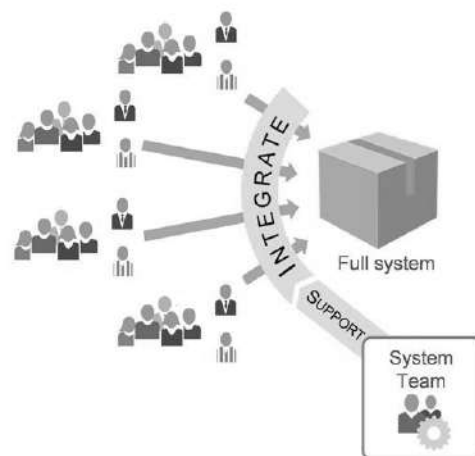
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Notes:

System Demos occur every two weeks

Demonstrate the full system to stakeholders every Iteration.

- ▶ Happens after the teams' Iteration reviews (may lag by as much as one Iteration)
- ▶ Demo occurs from the staging environment or the nearest proxy
- ▶ Product Owners and Product Managers lead the demo
- ▶ Attendees include Business Owners, executive sponsors, Customers, and Customer proxies



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Notes:

5.2 Participate in the System Demo

Recommended System Demo agenda

5 min:	Briefly review the business context and the PI Objectives
5 min:	Briefly describe each new Feature before demoing
25 min:	<ul style="list-style-type: none">▶ 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.	

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Notes:

Tips for effective Team and System Demos

Best approaches

Begin to consider how and what to demo in Iteration Planning

Make sure the right participants are present

Ensure that the team celebrates its accomplishments and that stakeholders acknowledge them

Make sure different team members have the opportunity to demo

Ensure that the team is ready for the System Demo and coordinates with the System Team

Common anti-patterns

A lot of time is spent preparing for the demo

Demo is mainly talk/slides as opposed to working software and/or hardware

PO sees things for the first time in the Team Demo

System Demo is not done because "the Team Demo is enough"

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

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Notes:

5.3 Innovate throughout the PI

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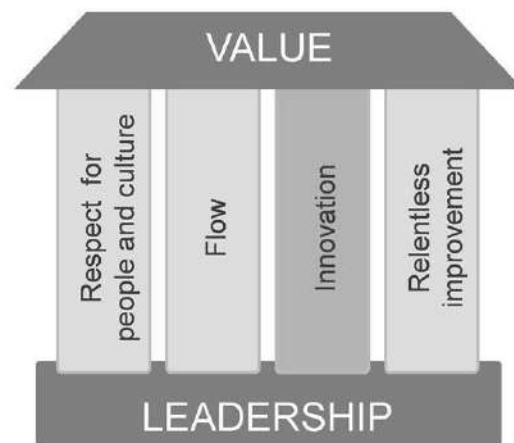
221

Notes:

Innovation is part of the Lean-Agile Mindset

One of the four pillars of SAFe's Lean-Agile Mindset is innovation.

- ▶ 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



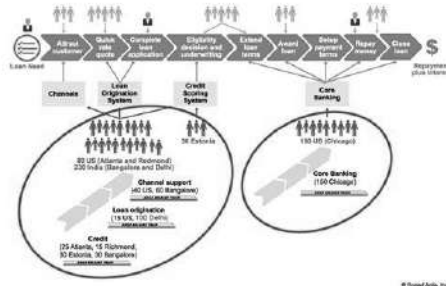
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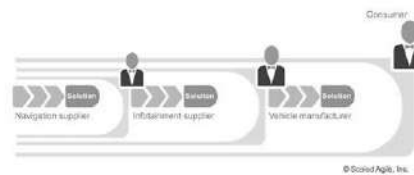
Notes:

Innovation occurs in the development Value Streams

Value Stream innovation refers to the innovations we create in the design and implementation of Value Streams and the Solution Context.



Can we innovate in how a customer completes and submits his loan application?



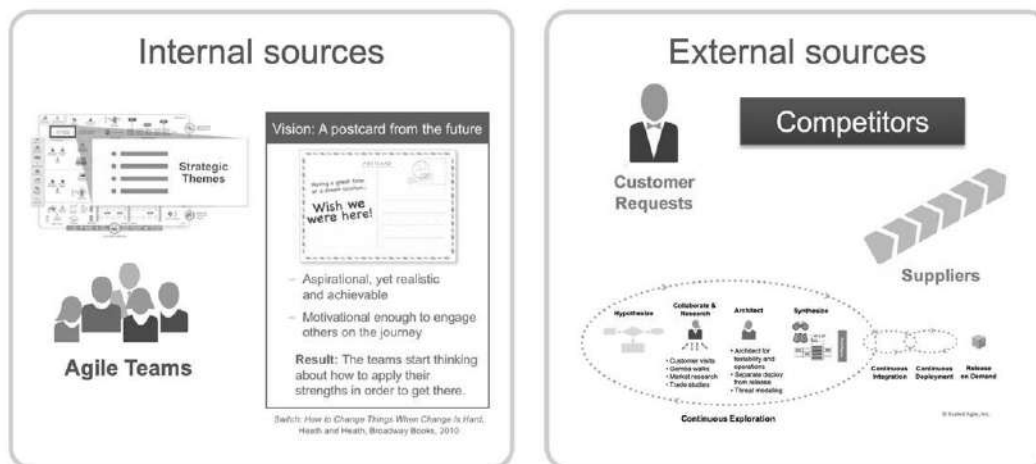
Could the Navigation supplier innovate their Solution Context by doing such things as 'moving' the navigation system from the console display directly into the steering wheel or into a heads-up display?

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Notes:

Innovative ideas come from many sources

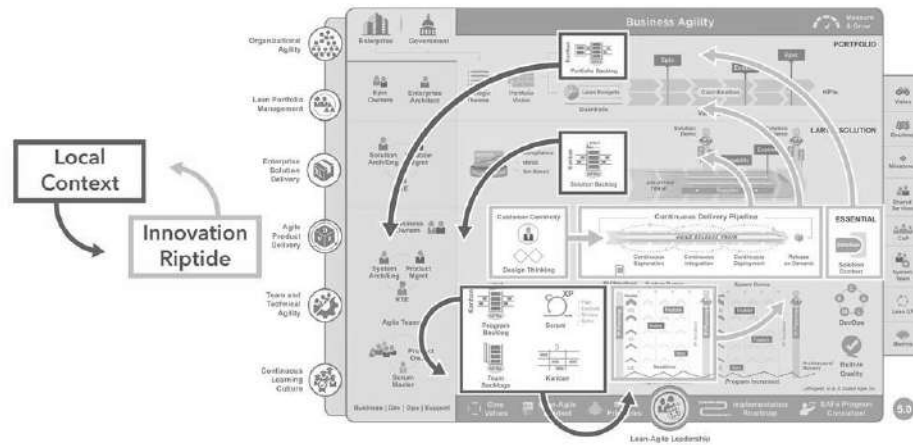


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Notes:

SAFe has many ways to promote and capture innovation



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Notes:

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

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Notes:

Leverage the Innovation and Planning Iteration

In SAFe, the Innovation and Planning (IP) Iteration occurs every Program Increment (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

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Notes:

The Innovation and Planning (IP) Iteration

Week 1

Week 2

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

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Notes:

Organize a hackathon

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

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Notes:

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
- ▶ Supplier showcases help 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 and POs/PMs to identify Enablers and improve Roadmaps
- ▶ Supplier showcases help Suppliers by providing them direct feedback on what they need to supply to the teams

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Notes:

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; they are commonly used to explore new ideas or determine feasibility of Epics
- ▶ Spikes increase learning within the team

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Notes:

Innovation enables a Continuous Learning Culture



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Notes:

5.4 Inspect and Adapt

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Notes:

Inspect and Adapt (I&A) overview

- 1 PI System Demo shows the Solution's current state to program stakeholders (45 – 60 minutes)
- 2 Quantitative measurement (45 – 60 minutes)
- 3 Retrospective and problem-solving workshop (1.5 – 2 hours)



I&A Suggested Timebox  3-4 hours

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Notes:

PI System Demo

- ▶ At the end of the PI, teams demonstrate the current state of the Solution to the appropriate stakeholders
- ▶ The agenda follows the pattern of the System Demo in the Iterations but is differentiated as the last System Demo of the current PI
- ▶ Often led by Product Management, POs, and the System Team
- ▶ Attended by Business Owners, program stakeholders, Product Management, RTE, Scrum Masters, and teams



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Notes:

Program performance reporting

As part of the PI System Demo, teams compare planned vs. actual business value.

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

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

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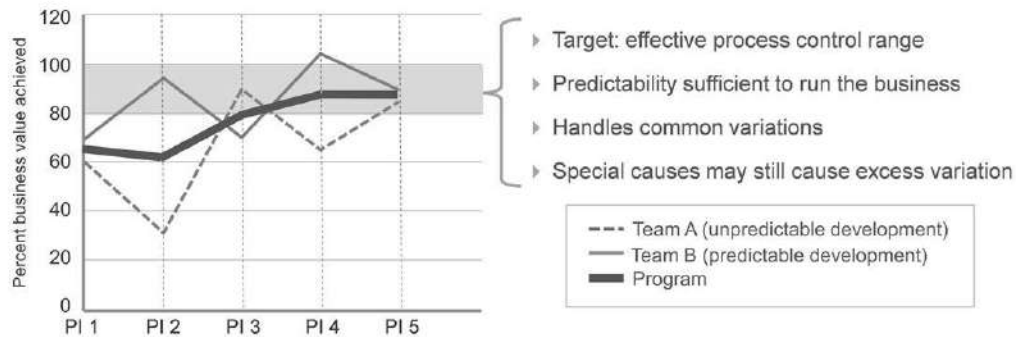
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Notes:

Program predictability measure

The program predictability measure shows whether achievements fall into an acceptable process control band.



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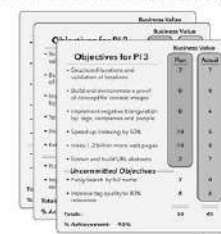
237

Notes:

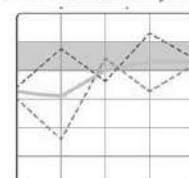
Team performance assessment

- ▶ All teams' PI Objectives were assigned a business value from 1 to 10
- ▶ Review and rate your PI achievements:
 - How well did you do against your stated objectives, including (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



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Notes:

Team PI performance report

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

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

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Notes:

Program performance Metrics

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

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- ▶ 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.

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Notes:



Video: The Retrospective and Problem-Solving Workshop Overview

Duration

4
min



Inspect & Adapt:
The Retrospective and Problem-Solving Workshop Overview

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Provider of SAFe

<https://vimeo.com/351678406/ce4e8a1cfa>

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Notes:

Problem-solving workshop

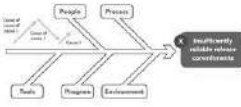
After a short retrospective, teams systematically address the larger impediments that are limiting velocity by using root cause analysis.

Agree on the problem to solve

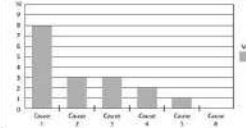
X

Insufficiently reliable release commitments

Apply root-cause analysis (and 5 Whys)



Identify the biggest root-cause using Pareto analysis




Restate the new problem for the biggest root-cause


X

Insufficient architectural runway

Brainstorm solutions



Identify improvement backlog items




NFRs

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Notes:



Activity: Retrospective

Prepare
10 min

Share
15 min

- ▶ Individually, write on sticky notes things you will start doing, stop doing, and continue doing when you return to your workplace as a result of this course.
- ▶ Place your sticky notes on the appropriate flip chart sheet.
- ▶ Share any big ideas or breakthrough moments you had during class that you plan to bring back to the workplace.

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Notes:



Action Plan: Executing the PI



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 Inspect and Adapt workshop?
- ▶ 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?

Notes:

Lesson review

In this lesson, you:

- ▶ Reviewed how POs participate in the PO sync
- ▶ Explored how POs and PMs participate in the System Demo
- ▶ Examined how to innovate throughout the PI
- ▶ Reviewed how to conduct an Inspect and Adapt workshop

Notes:

Lesson 6

Becoming a Certified SAFe Professional

Learning Objectives:

6.1 Becoming a Certified SAFe Professional



SAFe Authorized Course - Attending this course gives students access to the SAFe Product Owner/Product Manager exam and related preparation materials

Make the most of your learning



Access the SAFe Community Platform

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



Prepare Yourself

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



Become a Certified SAFe Professional

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



Showcase Your SAFe Credentials

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

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Notes:



Video: Become a Certified SAFe Professional



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

Earning this certification demonstrates and establishes your new knowledge.

Certification details at:

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



<https://vimeo.com/307578726>

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Notes:



Video: Welcome to the SAFe Community Platform

Duration
5 min

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

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



<https://vimeo.com/201877314>

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Notes:

Appendix 1

Action Plans

Lesson 1 Action Plan




Action Plan: Becoming a Product Owner/Product Manager in the SAFe Enterprise

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/or your organization to establish or foster the Product Owner and Product Manager roles 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 it is organized around value and describe ways it might improve organizing around value.



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Notes:

What are some potential issues that might make it difficult to shift your approach, your team, and/or your organization to establish or foster the Product Owner and Product Manager roles 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 it is organized around value and describe ways it might improve organizing around value.

Lesson 2 Action Plan




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 and a whole product model to assist your ART in developing Features?



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Notes:

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 and a whole product model to assist your ART in developing Features?

Lesson 3 Action Plan



Action Plan: Leading PI Planning



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?

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Notes:

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.

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

Lesson 4 Action Plan



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 Stories?
- ▶ Where might you be able to apply story maps?
- ▶ How can you improve your participation in all the Iteration events?

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Notes:

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

Where might you be able to apply story maps?

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

Lesson 5 Action Plan



Action Plan: Executing the PI



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 Inspect and Adapt workshop?
- ▶ 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?

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Notes:

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

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?

Glossary



SAFe Glossary:

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