

Leading SAFe®

Thriving in the Digital Age with Business Agility

5.0.1

SAFe® Course - Attending this course gives students access to the SAFe Agilist exam and related preparation materials.



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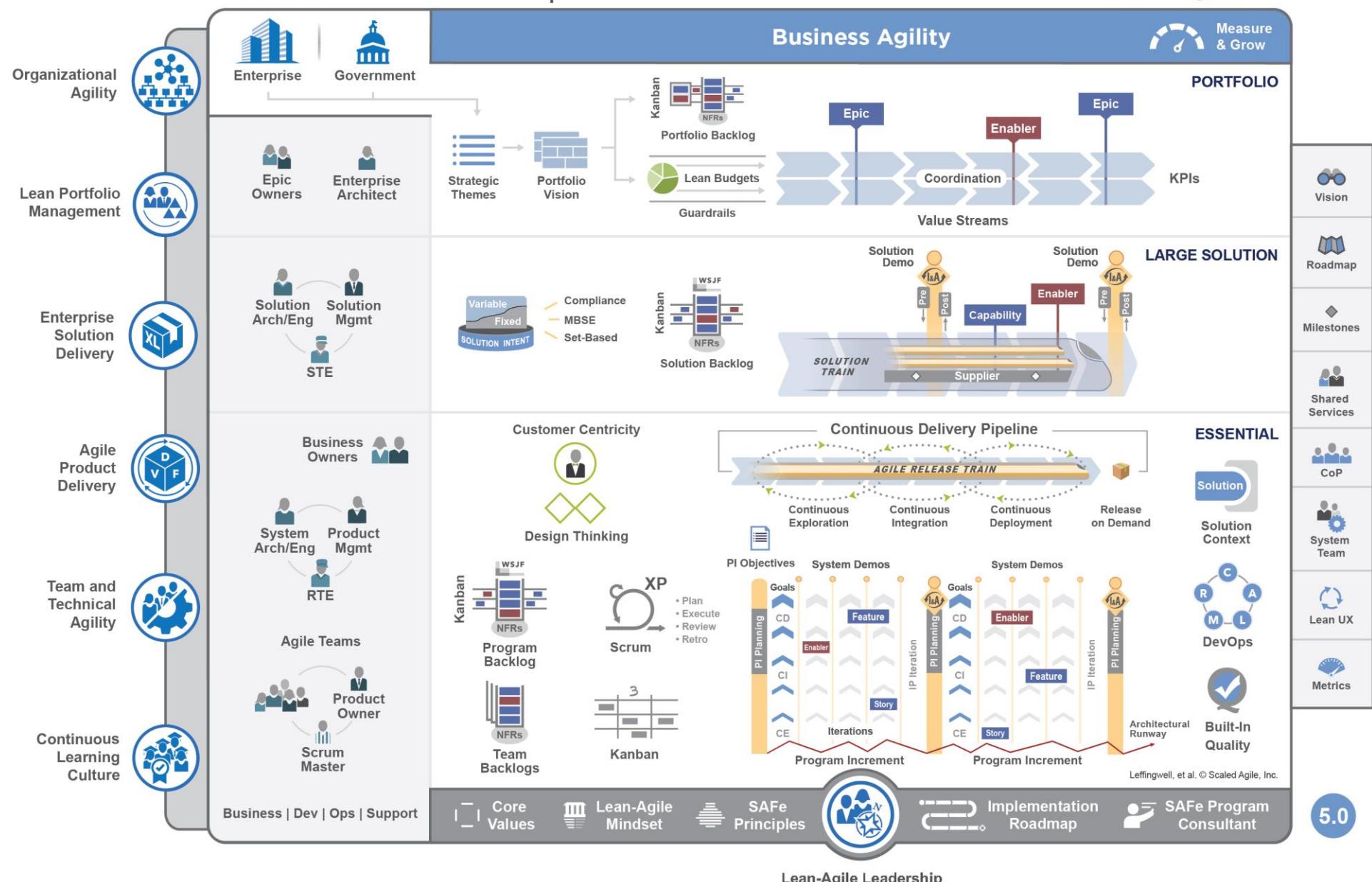
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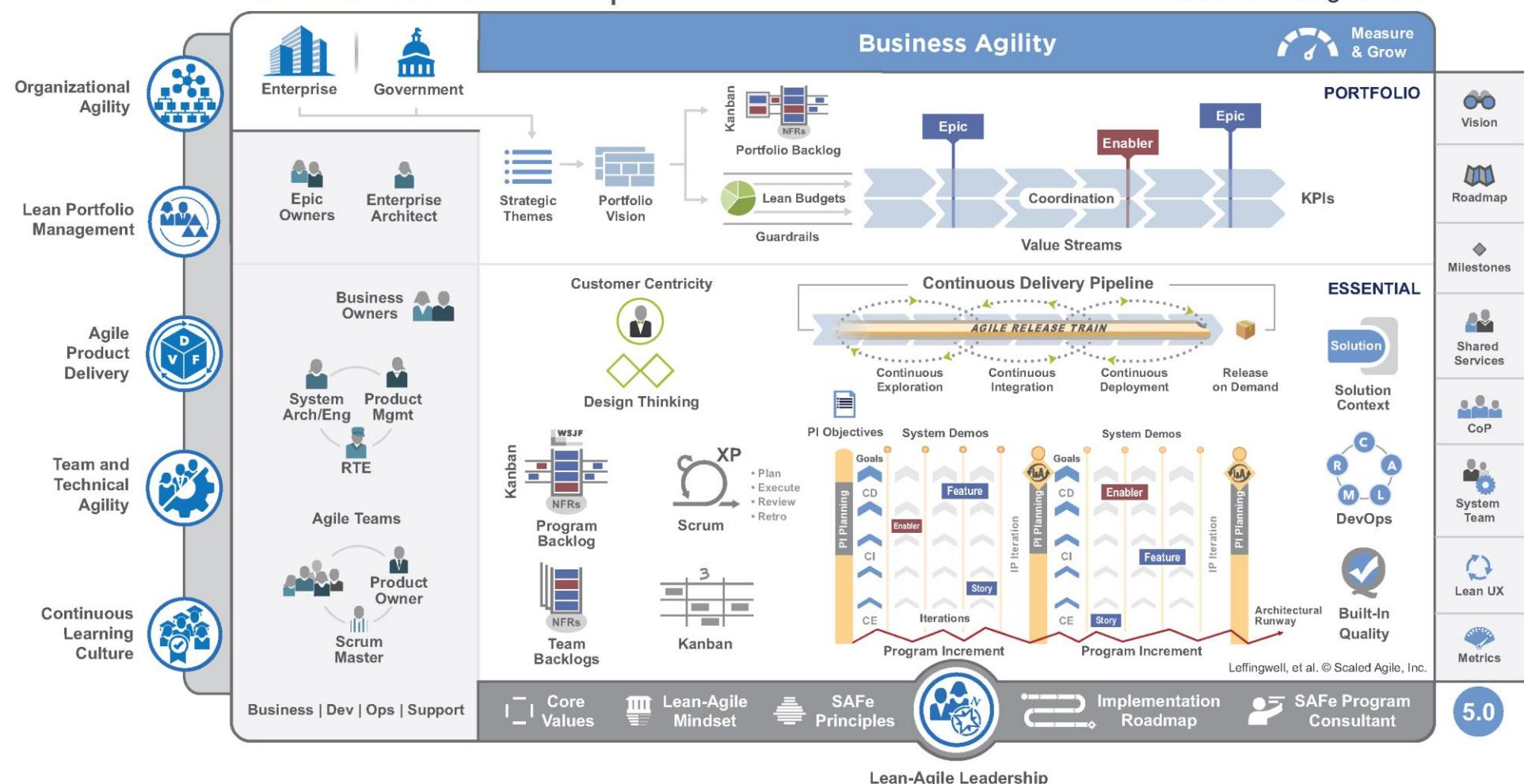
SAFe® for Lean Enterprises

Full Configuration



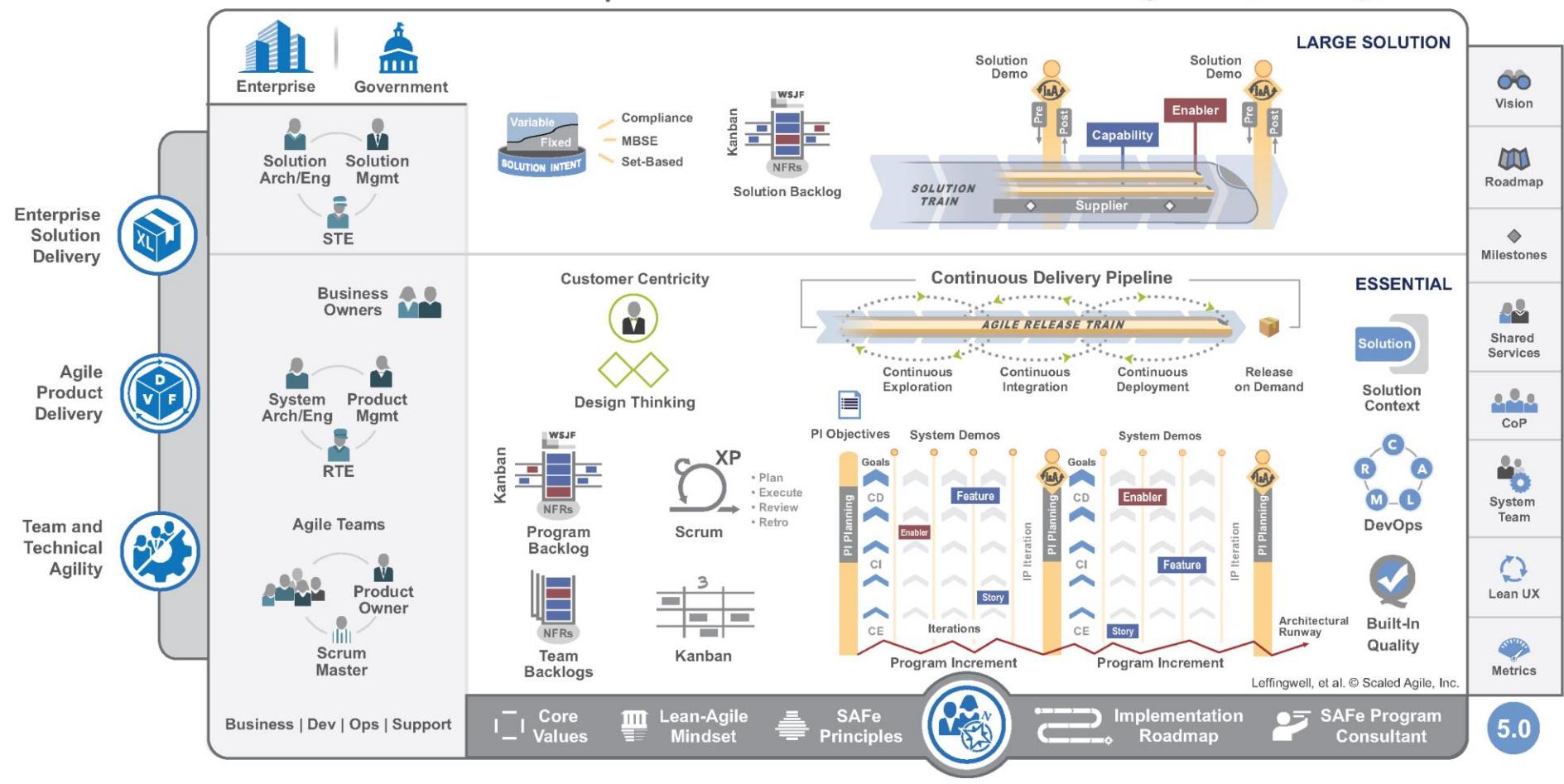
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Portfolio Configuration



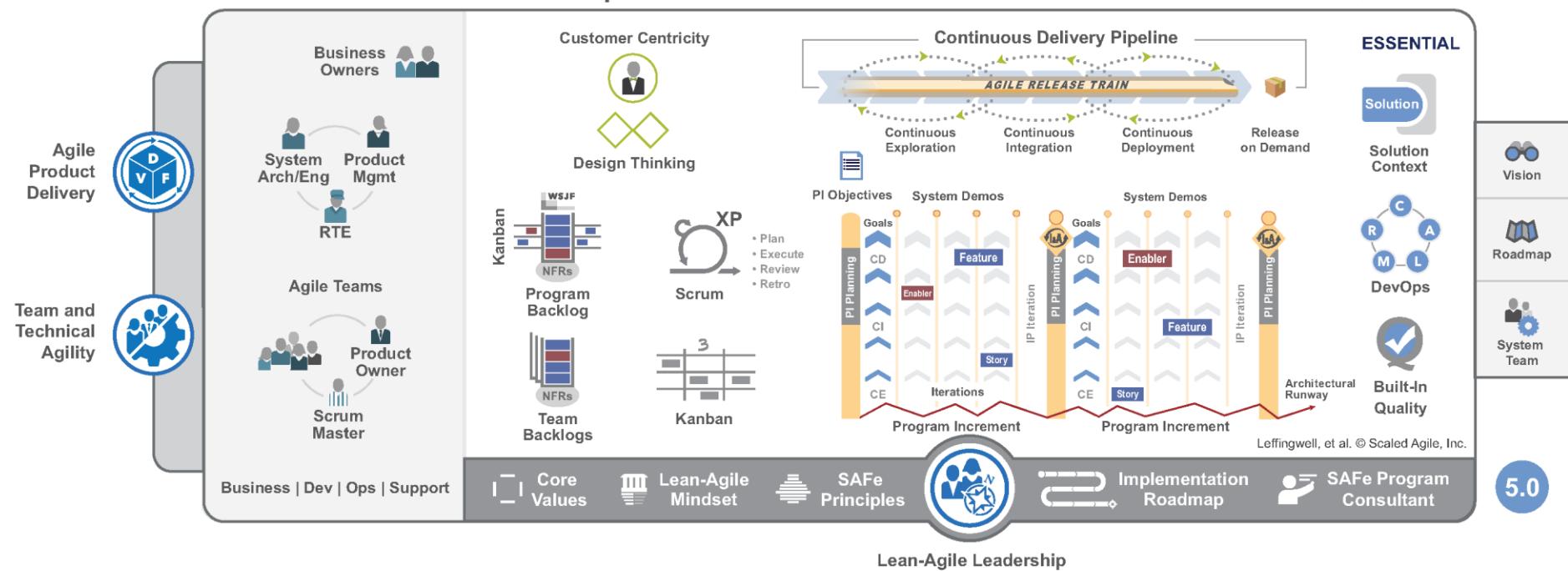
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Large Solution Configuration



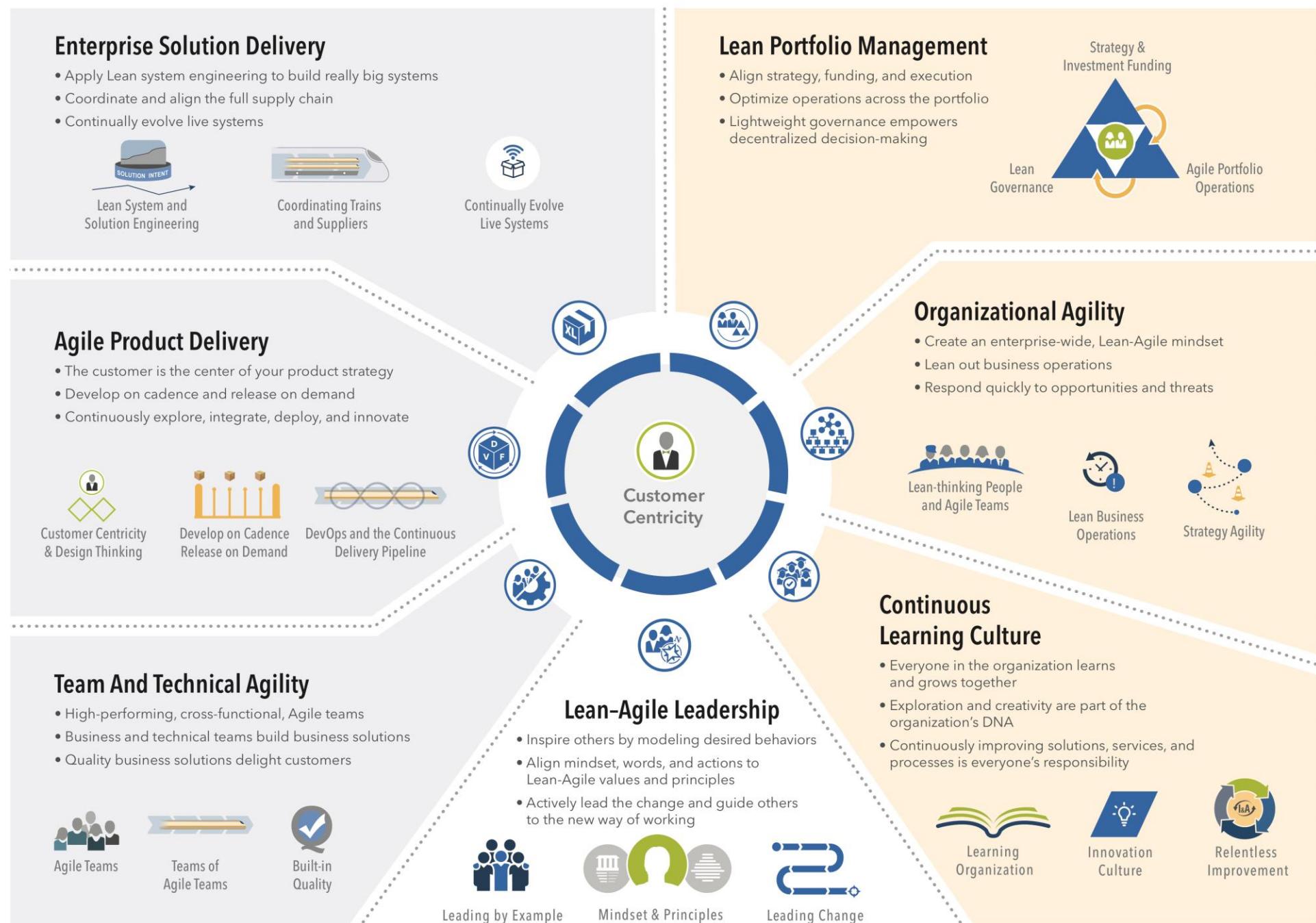
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Essential Configuration

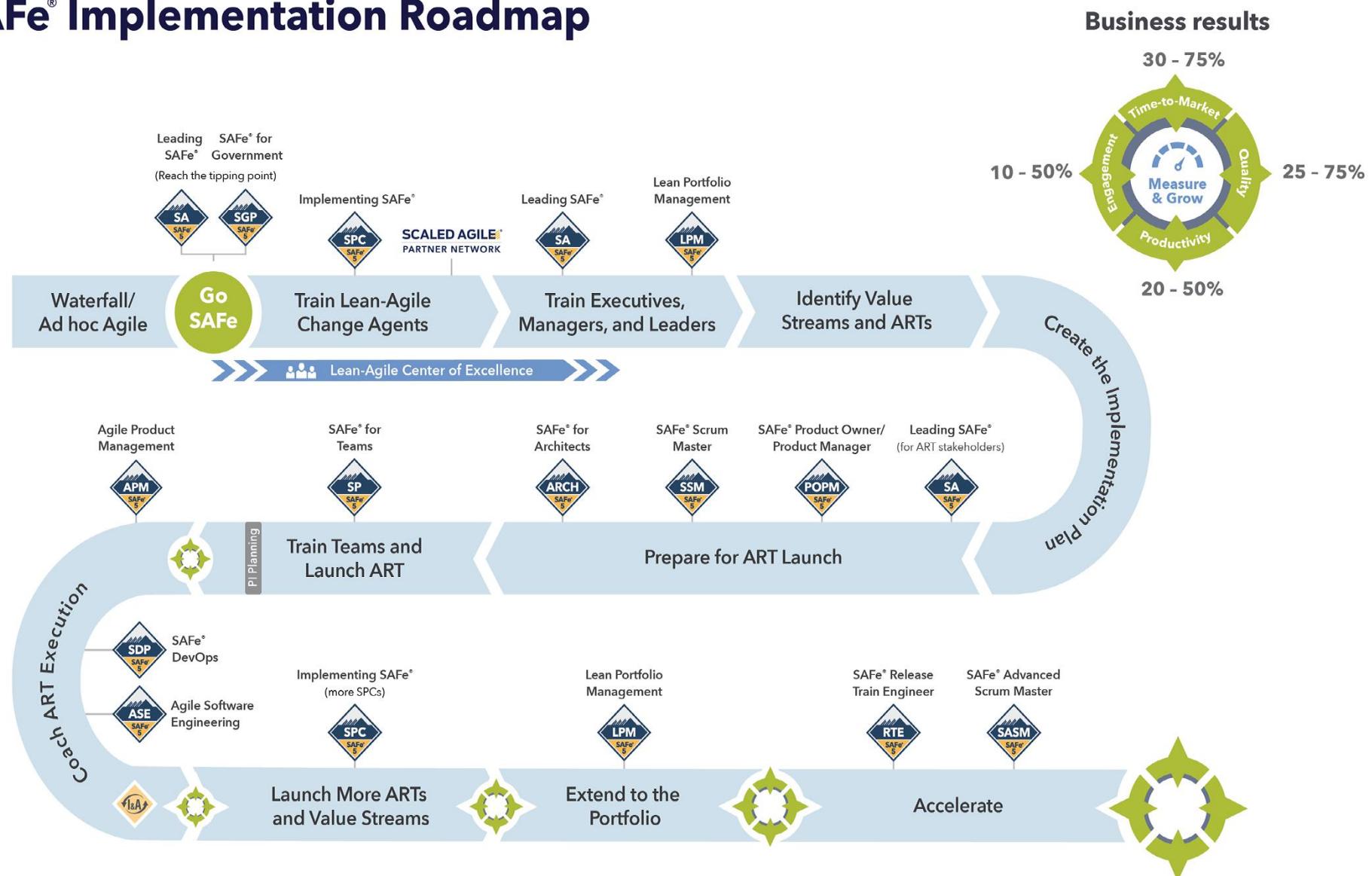


BUSINESS AGILITY

MEASURE & GROW



SAFe® Implementation Roadmap



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SAFe® Courses and Certifications

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

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Digital Workbook User Guide

Frequently Asked Questions

Q: How can I take notes in my digital workbook?

A: After each lesson, there is a notes page that allows you to type notes directly into the workbook. Remember to save your workbook to your personal computer to save any content you may have added.

If you open the digital workbook with a product like Adobe Acrobat, there are functions that allow you to add your own text boxes, add bookmarks, highlight text, and add comments. Remember to save your workbook to your personal computer to save any content you may have added.

For additional assistance in annotating your digital workbook, please refer to the tutorials and support articles for the PDF reader of your choice.

Q: What other features are included in the digital workbook?

A: Action plan slides are followed by editable digital action plan worksheets. All videos have a hyperlink directly below the slide that will take you to the correct URL. If you click on assets in the front matter, you will be taken to resources on the Scaled Agile Framework website, like the Implementation Roadmap and course certification pages.

Q: How do I fill out the action plan in my digital workbook?

A: To add text to a blue text field, click within the blue box and type. Remember to save your workbook to your personal computer to save any content you may have added.

Q: Is my digital workbook saved on the community platform?

A: The original digital workbook file will always be available to you in your Learning Plan on the SAFe Community Platform. However, any text or content added to your digital workbook must be saved on your personal computer. Remember to save your workbook to your personal computer to save any content you may have added.

Q: Can I share my digital workbook with my coworkers?

A: No. You cannot share your digital workbook. It is for personal use only, so you may not reproduce or distribute it.

Q: Can I print the digital workbook?

A: Yes. You may print the digital workbook for your personal use. The file is letter sized and full color, so make sure to adjust your printing preferences accordingly.

Leading SAFe®

Thriving in the Digital Age with Business Agility

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Notes:

Logistics

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

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Notes:



Discussion: Introductions

Duration
5 min

- ▶ **Step 1:** Introduce yourself to someone you don't know
- ▶ **Step 2:** Share something you know about SAFe and the role of the Lean-Agile Leader



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Notes:

Course goals

At the end of this course you should be able to:

- ▶ Lead the transformation to Business Agility with SAFe
- ▶ Become a Lean-Agile leader
- ▶ Understand Customer needs with Design Thinking
- ▶ Enable Agile Product Delivery
- ▶ Initiate Lean Portfolio Management

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Notes:



Activity: Course goals overview

Duration
 5 min

- ▶ **Step 1:** Introduce yourself to someone new and share three things you would like to take away from the course.
- ▶ **Step 2:** Review the outlined course goals posted on flip chart sheets around the room.
- ▶ **Step 3:** You have three votes total. Place a dot on the goals that are most relevant to you.

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Notes:

Lesson 1

Thriving in the Digital Age with Business Agility

Learning Objectives:

- 1.1 Thrive in the digital age
- 1.2 Describe SAFe as an operating system for Business Agility
- 1.3 Explain the Seven Core Competencies of Business Agility



SAFe® Course Attending this course gives students access to the SAFe® Agilist exam and related preparation materials.

1.1 Thrive in the digital age

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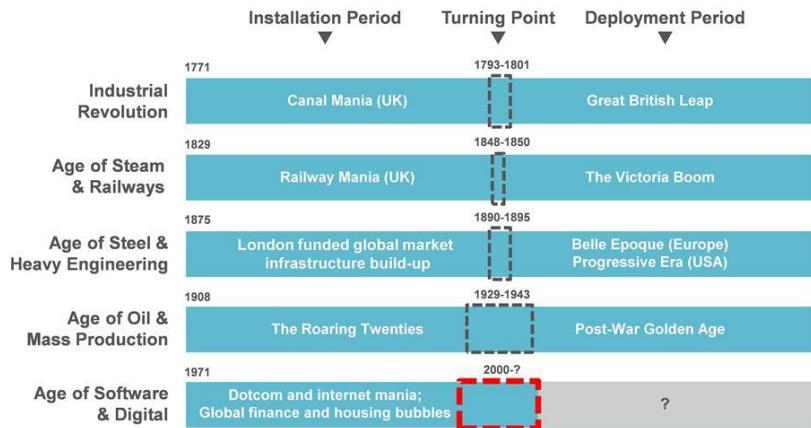
Those who master large-scale software delivery will define the economic landscape of the 21st century.

—Mik Kersten



Notes:

Five technological revolutions



Adapted from Technological Revolutions and the Age of Software, Carlota Perez

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Notes:

Production capital follows financial capital

- ▶ **Installation Period** – New technology and financial capital combine to create a “Cambrian explosion” of new entrants, disrupting the entire industries from the previous age
- ▶ **Turning Point** – Existing business either master the new technology or decline and become relics of the last age
- ▶ **Deployment Period** – Production capital of the new technological giants starts to take over



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Notes:

What stage are we in?

- ▶ "BMW Group's CEO expects that in their future more than half of its R&D staff will be software developers." (Mik Kersten, Project to Product)
- ▶ "Amazon and Whole Foods Merger to Introduce Cross-Platform Selling and Lower Prices" (Forbes, August 2017)
- ▶ The market cap of Tesla (\$43B market cap, \$21B revenue) now exceeds the market cap of Ford (\$36.2B market cap, \$160B revenue) 8:1 value ratio (September 2019)
- ▶ Apple is now the biggest watchmaker in the world (Investopedia 2019)



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Notes:

Competing in the Age of Software



The problem is not with our organizations realizing that they need to transform; the problem is that organizations are using managerial frameworks and infrastructure models from past revolutions to manage their businesses in this one.

—Mik Kersten

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Notes:

Rethinking the organization

“

The world is now changing at a rate at which the basic systems, structures, and cultures built over the past century cannot keep up with the demands being placed on them.

—John P. Kotter



Notes:

We started with a network

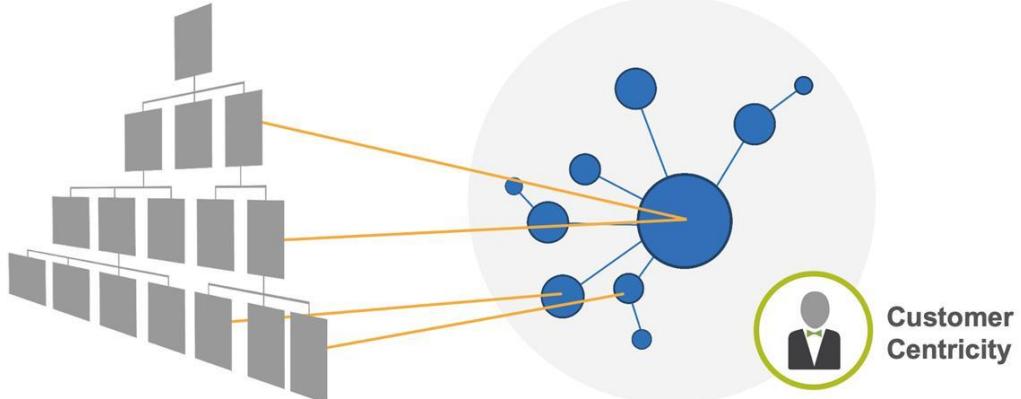


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Notes:

We add hierarchy for stability and execution

Speed of Innovation

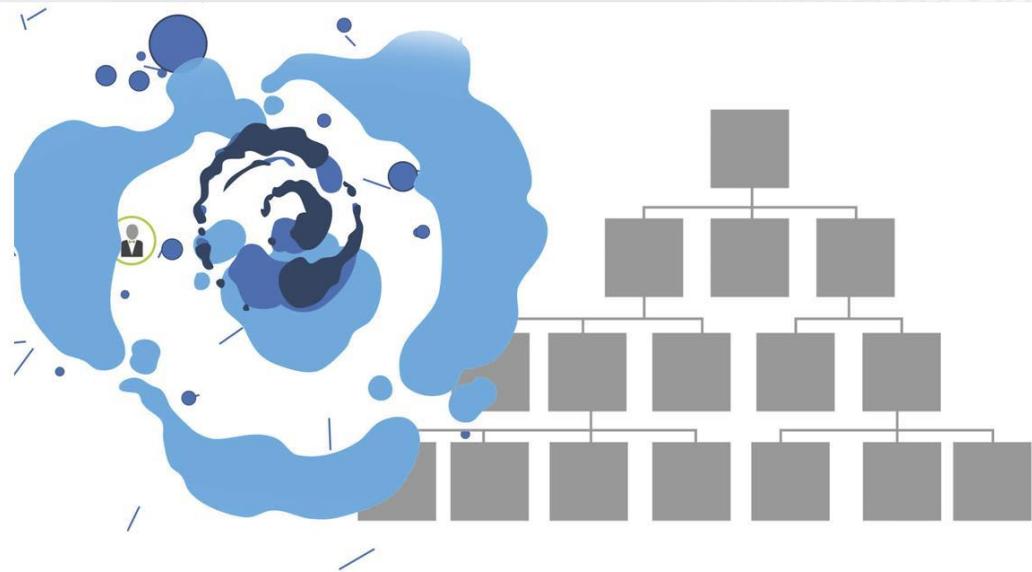


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Notes:

Guess what happens?



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Notes:



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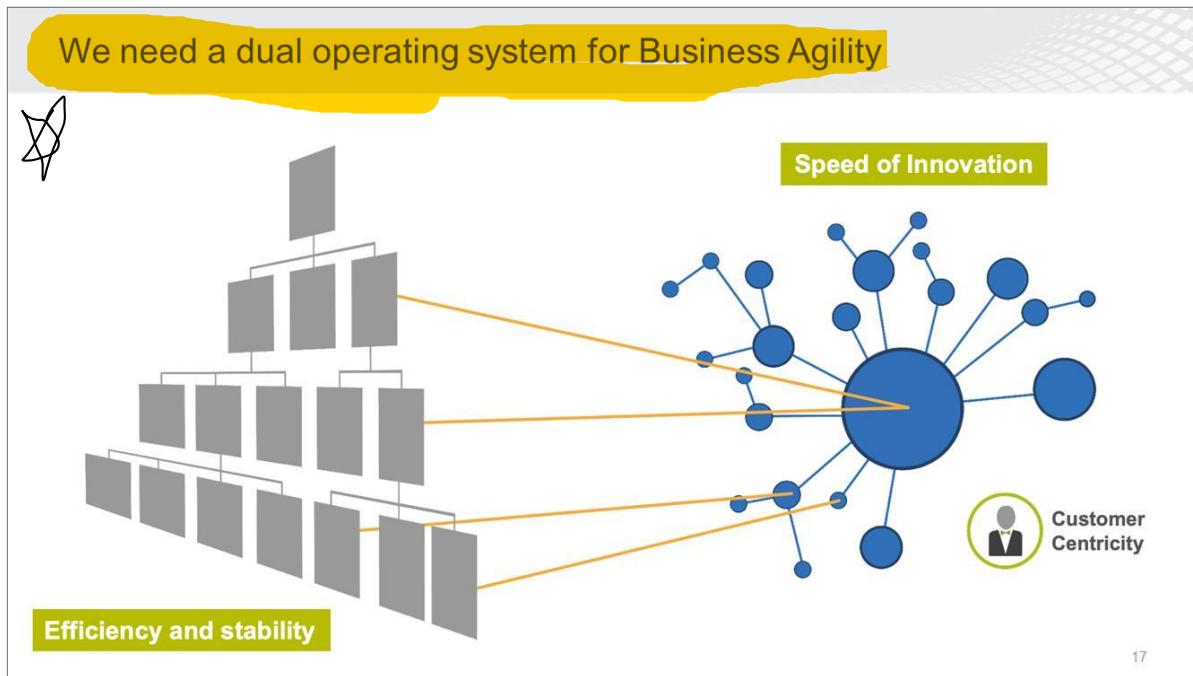
The solution is not to trash what we know and start over but instead to reintroduce a second system—one which would be familiar to most successful entrepreneurs.

You need a dual operating system.

—John P. Kotter

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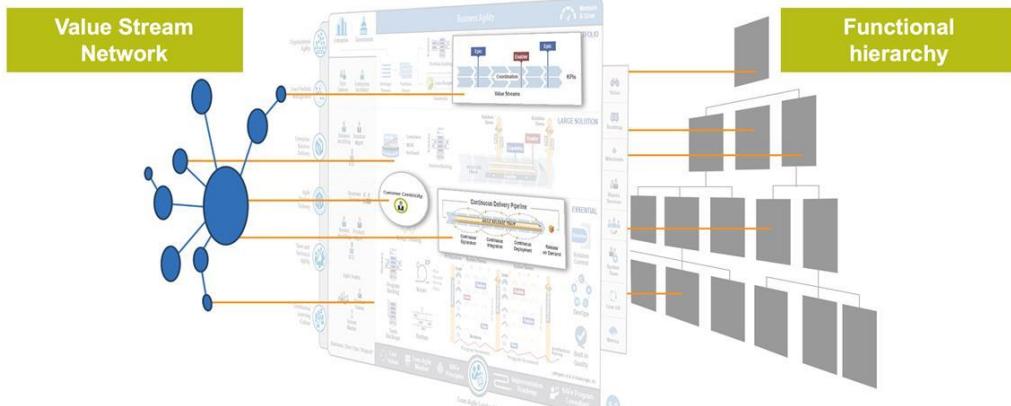
Notes:



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Notes:

And we have just such an operating system at our fingertips



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Notes:

1.2 Describe SAFe as an operating system for Business Agility

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Notes:



Every business is a software business now.
Achieving a state of **business agility** means that the entire organization—*not just development*—is engaged in continually and proactively delivering innovative business solutions faster than the competition.

— *Dean Leffingwell*
Creator of SAFe 20

Notes:

1.2 Describe SAFe as an operating system for Business Agility

Business Agility requires technical agility **and** a business-level commitment to product and Value Stream thinking.

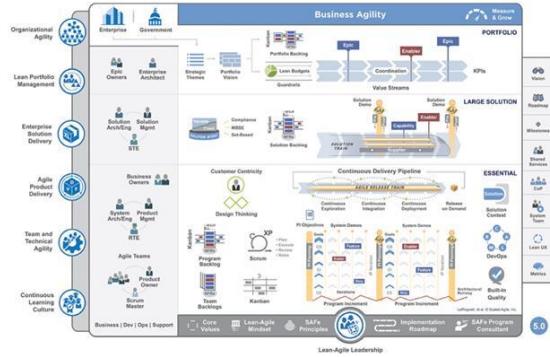
And it requires that **everyone involved in delivering business Solutions** use Lean and Agile practices.



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Notes:

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



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Notes:

1.2 Describe SAFe as an operating system for Business Agility

Why SAFe?

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



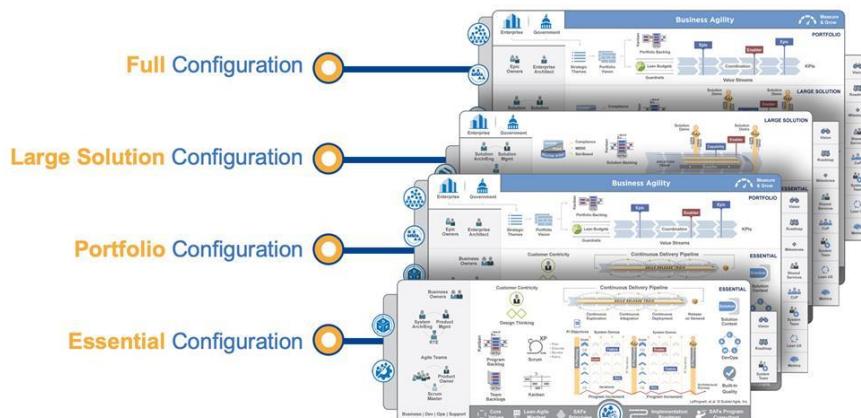
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Notes:

SAFe configurations

Four configurations provide the right solution for each Enterprise.



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Notes:

1.2 Describe SAFe as an operating system for Business Agility

SAFe: Roots, past, present and future

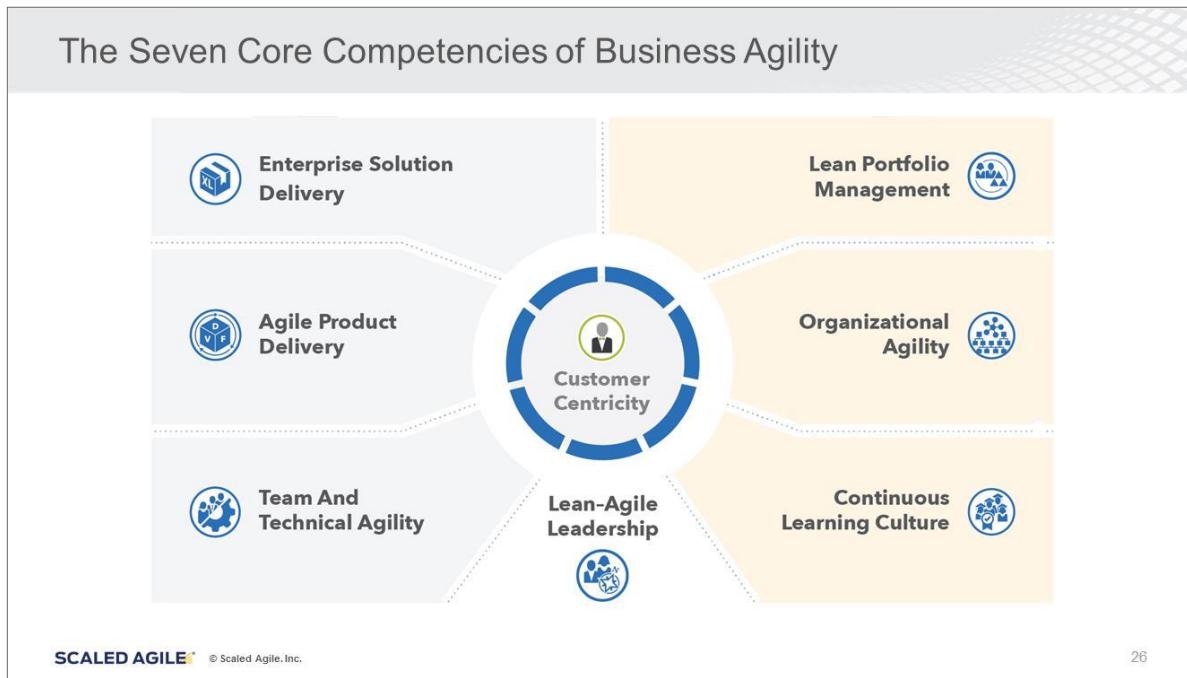
2011 Field experience at enterprise scale Now...

Lean product development | Agile development | DevOps | Systems thinking

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Notes:



Notes:

1.3 Explain the Seven Core Competencies of Business Agility

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Notes:



Why Team and Technical Agility?

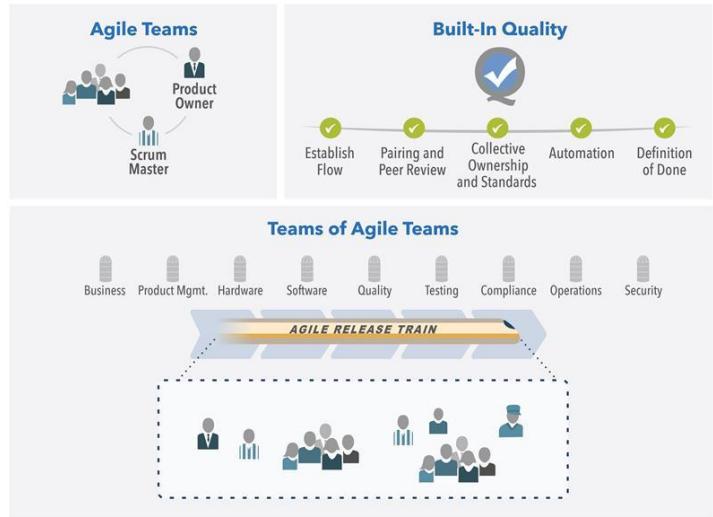
Agile Teams and teams of Agile Teams create and support the business Solutions that deliver value to the Enterprise's customers. Consequently, an organization's ability to thrive in the digital age is entirely dependent on the ability of its teams to deliver Solutions that reliably meet a customer's needs.

Notes:

1.3 Explain the Seven Core Competencies of Business Agility

Team and Technical Agility

The Team and Technical Agility competency describes the critical skills and Lean-Agile principles and practices that high-performing Agile Teams and teams of Agile Teams use to create high-quality solutions for their customers.

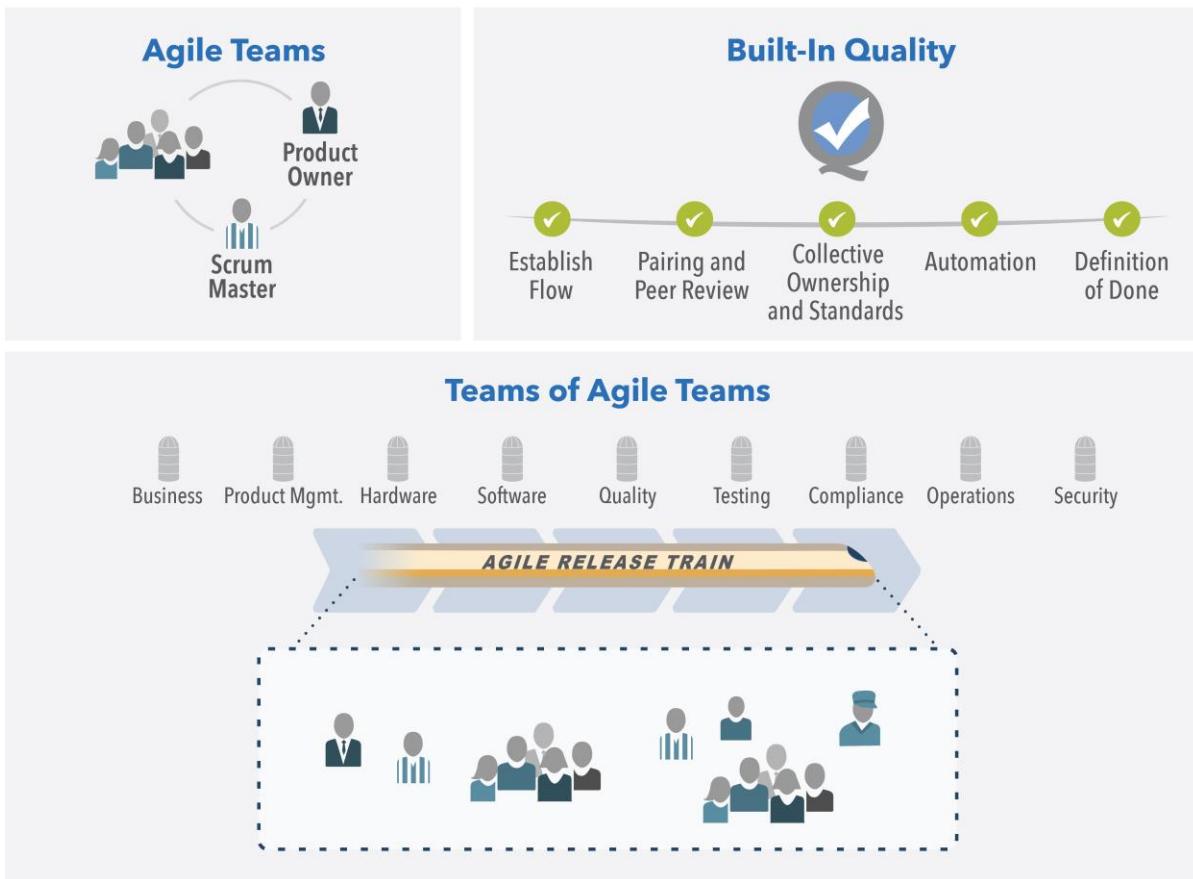


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Notes:

1.3 Explain the Seven Core Competencies of Business Agility



Notes:

Agile Product Delivery

Agile Product Delivery is a customer-centric approach to defining, building, and releasing a continuous flow of valuable products and services to customers and users.

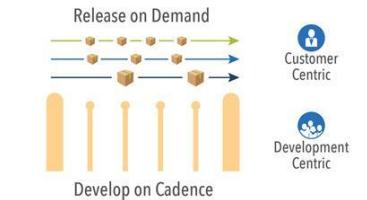
Customer Centricity



Design Thinking



Develop on Cadence, Release on Demand



DevOps and the Continuous Delivery Pipeline



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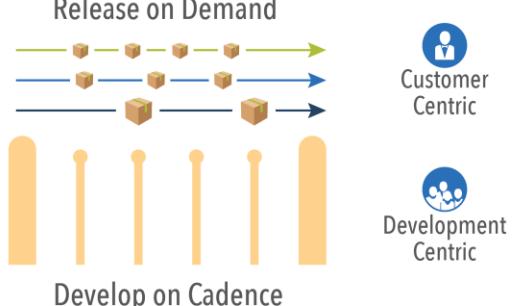
Customer Centricity



Design Thinking



Develop on Cadence, Release on Demand



DevOps and the Continuous Delivery Pipeline



1.3 Explain the Seven Core Competencies of Business Agility

Why Enterprise Solution Delivery?

Humanity has always dreamed big; and scientists, engineers, and software developers then turn those big dreams into reality. That requires innovation, experimentation, and knowledge from diverse disciplines. Engineers and developers bring these innovations to life by defining and coordinating all the activities to successfully specify, design, test, deploy, operate, evolve, and decommission large, complex solutions.



Courtesy NASA Goddard

Notes:

Enterprise Solution Delivery

The Enterprise Solution Delivery competency describes how to apply Lean-Agile principles and practices to specification, development, deployment, operation, and evolution of the world's largest and most sophisticated software applications, networks, and cyber-physical systems.

Lean System and Solution Engineering



Coordinating Trains and Suppliers



Continually Evolve Live Systems



AGILE RELEASE TRAIN

Continuous Delivery Pipeline

Evolve Deployed Systems

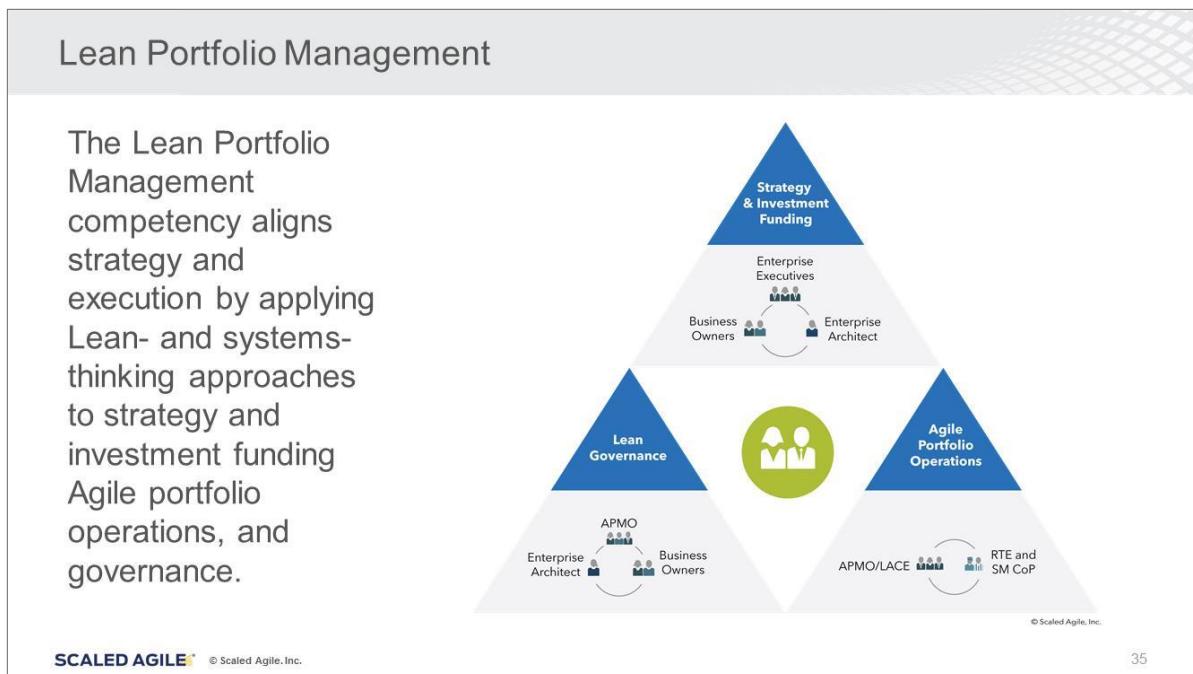
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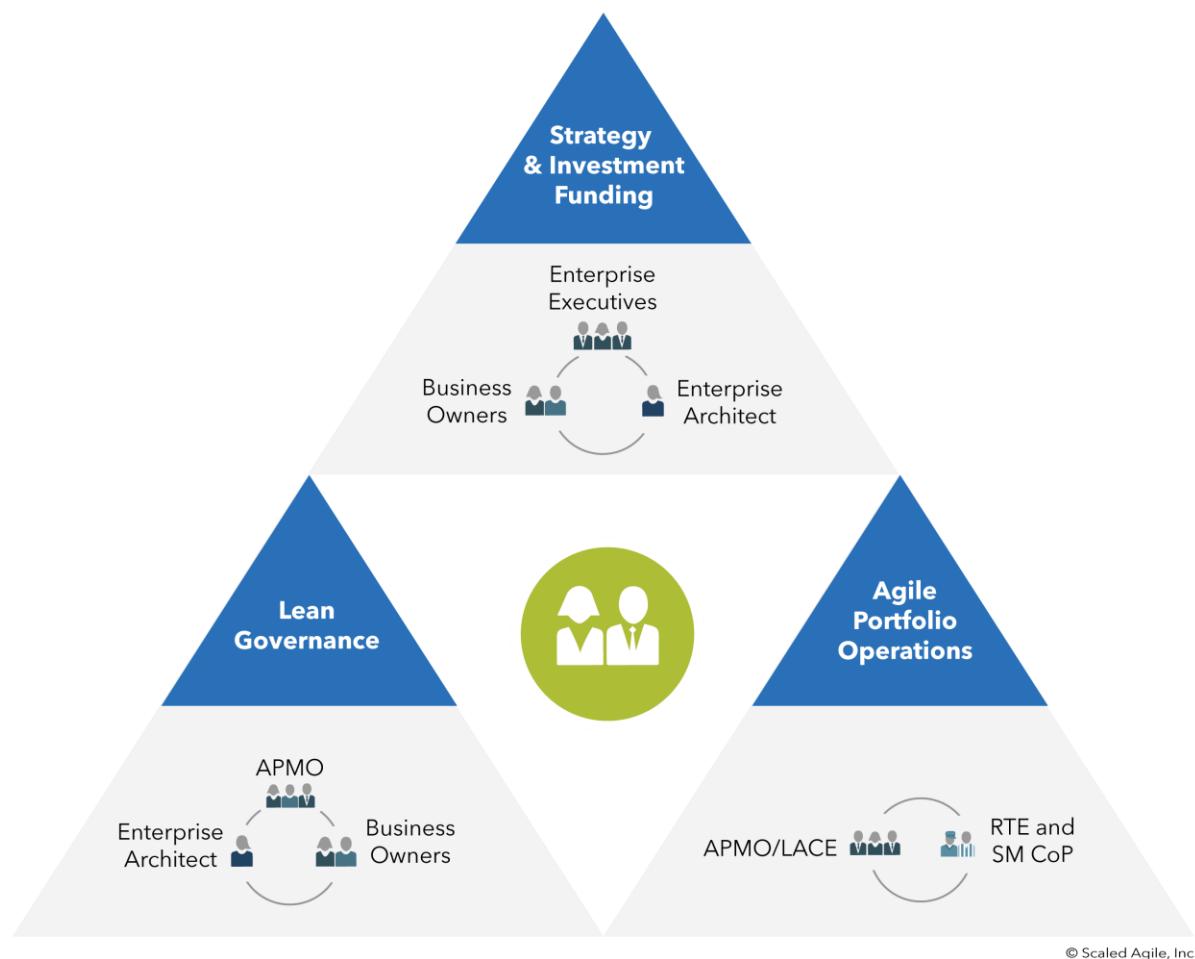
Notes:

1.3 Explain the Seven Core Competencies of Business Agility



Notes:

1.3 Explain the Seven Core Competencies of Business Agility



1.3 Explain the Seven Core Competencies of Business Agility



Why Organizational Agility?

Without Organizational Agility, Enterprises simply cannot respond sufficiently to the challenges and opportunities that today's rapidly changing markets present. Without it, employees and the Enterprises associate an individual's value with their functional skills, rather than business outcomes.

Notes:

Organizational Agility

The Organizational Agility competency describes how Lean-thinking people and Agile Teams optimize their business process, evolve strategy with clear and decisive new commitments, and quickly adapt the organization as needed to capitalize on new opportunities.



Lean-Thinking People and Agile Teams

House of Lean SAFe Principles Agile Manifesto

Lean Business Operations

Process Time → Delay Time → Process Time

Strategy Agility

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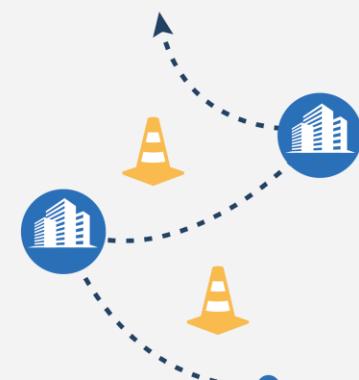
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Lean-Thinking People and Agile Teams

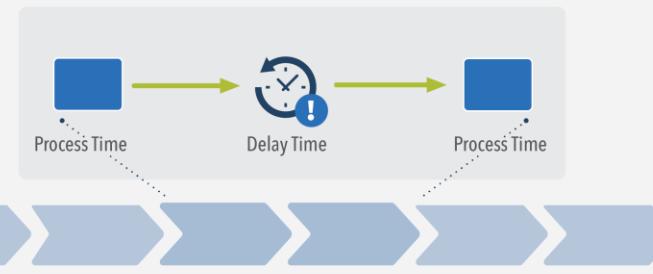


House of Lean SAFe Principles Agile Manifesto

Strategy Agility



Lean Business Operations



Why Continuous Learning Culture?

In order to thrive in the current climate, organizations must evolve into adaptive engines of change, powered by a culture of fast and effective learning at all levels. Learning organizations leverage the collective knowledge, experience, and creativity of their workforce, customers, supply chain, and the broader ecosystem.



Notes:

1.3 Explain the Seven Core Competencies of Business Agility

Continuous Learning Culture

The Continuous Learning Culture competency describes a set of values and practices that encourage individuals, and the Enterprise as a whole, to continually increase knowledge, competence, performance, and innovation

Learning Organization

Relentless Improvement

- Constant Sense of Danger
- Optimize the Whole
- Problem Solving Culture
- Reflect at Key Milestones
- Fact-Based Improvement

Innovation Culture

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Notes:

Learning Organization

Relentless Improvement

- Constant Sense of Danger
- Optimize the Whole
- Problem Solving Culture
- Reflect at Key Milestones
- Fact-Based Improvement

Innovation Culture

1.3 Explain the Seven Core Competencies of Business Agility

Why Lean-Agile Leadership?

An organization's managers, executives, and other leaders are responsible for the adoption, success, and ongoing improvement of Lean-Agile development and the competencies that lead to Business Agility. Only they have the authority to change and continuously improve the systems that govern how work is performed.



Notes:

Lean-Agile Leadership

The Lean-Agile Leadership competency describes how Lean-Agile Leaders drive and sustain organizational change and operational excellence by empowering individuals and teams to reach their highest potential.

Mindset & Principles



Core Values | Lean-Agile Mindset | SAFe Principles

Leading by Example

- Authenticity
- Decentralized Decision-Making
- Emotional Intelligence
- Lifelong Learning
- Growing Others

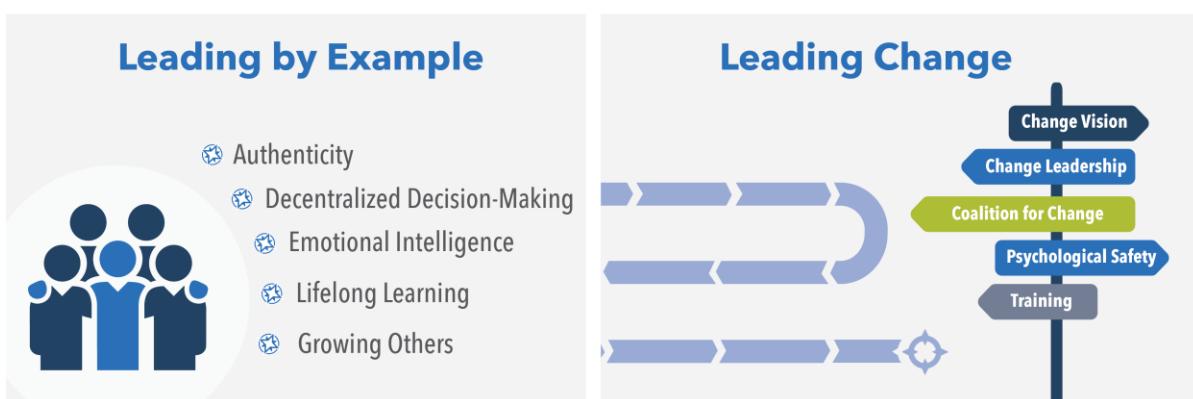
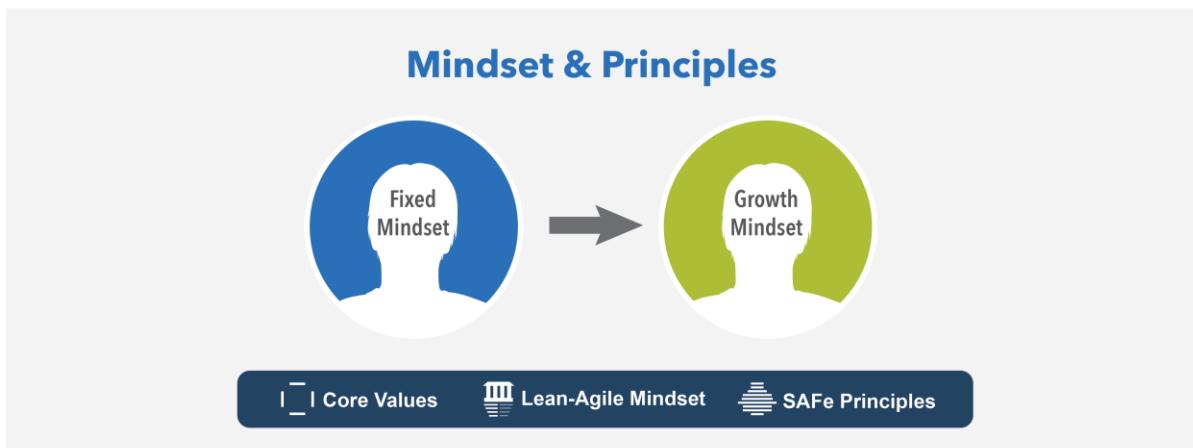
Leading Change



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Notes:

1.3 Explain the Seven Core Competencies of Business Agility



The management challenge

*It is not enough that management commit themselves to quality and productivity, they must know what it is they must do.
Such a responsibility cannot be delegated.*

—W. Edwards Deming

...and if you can't come, send no one"
—Vignette from "Out of the Crisis," W. Edwards Deming

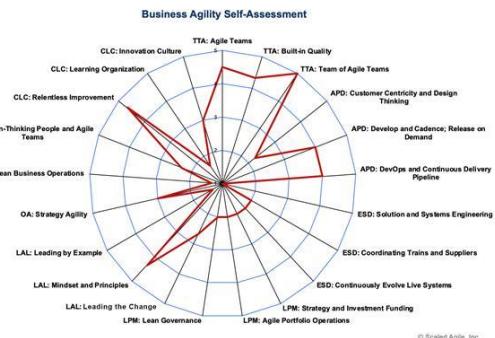
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Notes:

1.3 Explain the Seven Core Competencies of Business Agility

Measure and Grow

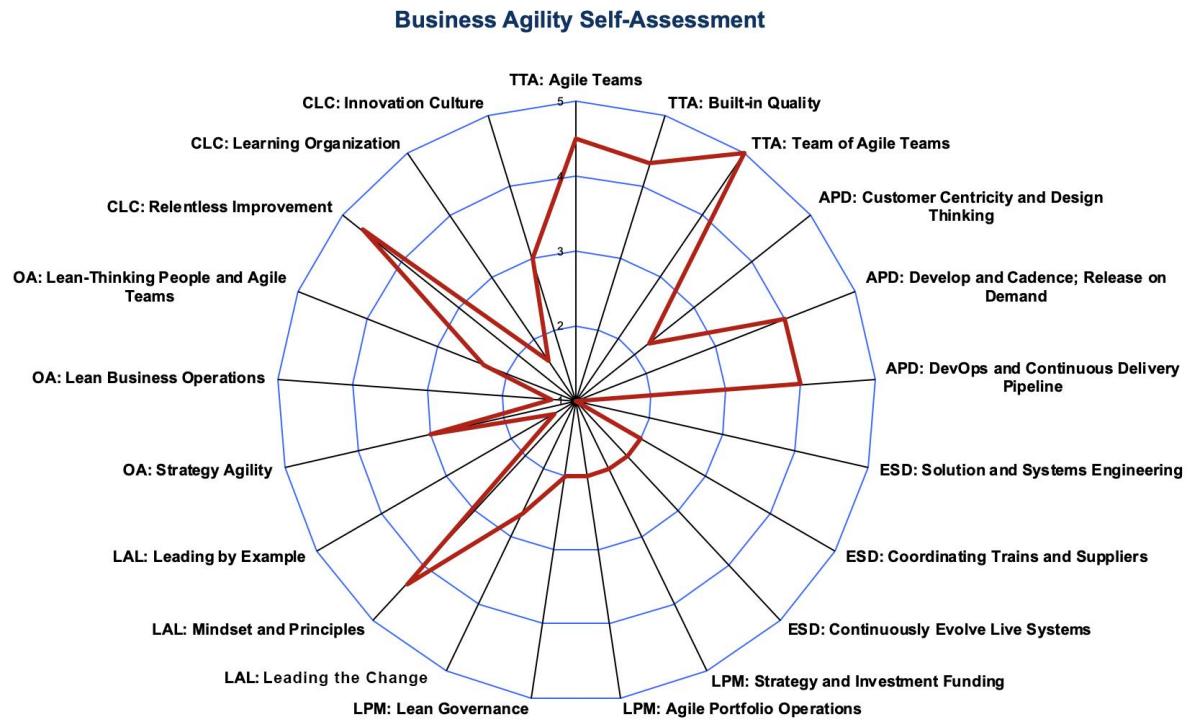
Measure and Grow is the way portfolios evaluate their progress in Business Agility and determine their next improvement steps.



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Notes:



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Lesson review

In this lesson you:

- ▶ Discussed what is necessary to be able to thrive in the digital age
- ▶ Described SAFe as your operating system for Business Agility
- ▶ Explained the Seven Core Competencies of Business Agility

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Notes:

Scaled Agile Framework recommended reading for this lesson:



- [SAFe for Lean Enterprises](#)
- [Business Agility](#)
- [Measure and Grow](#)

Lesson 1 notes



Enter your notes below:

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

Lesson 2

Becoming a Lean-Agile Leader

Learning Objectives:

- 2.1 Embrace the Lean-Agile Mindset
- 2.2 Apply Lean and Agile at scale with the SAFe Principles



SAFe® Course Attending this course gives students access to the SAFe® Agilist exam and related preparation materials.

2.1 Embrace the Lean-Agile Mindset

2.1 Embrace the Lean-Agile Mindset

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Notes:

Exemplifying SAFe core values

Alignment

- ▶ Provide the relevant briefings and participate in Program Increment (PI) Planning
- ▶ Help with backlog visibility, review, and preparation
- ▶ Help with Value Stream organization and coordination
- ▶ Constantly check for understanding
- ▶ Communicate the mission, visions and strategy at every opportunity

Transparency

- ▶ Visualize all relevant work
- ▶ Take ownership and responsibility for errors and mistakes
- ▶ Admit your own mistakes
- ▶ Support others who acknowledge and learn from their mistakes—never punish the messenger

Built-in Quality

- ▶ Demonstrate quality by refusing to accept or ship low-quality work
- ▶ Support investments in capacity planning for maintenance and reduction of technical debt
- ▶ Ensure UX, architecture, operations, security, compliance, and others, are part of the flow of work

Program Execution

- ▶ Participate as an active business owner in PI execution
- ▶ Celebrate high quality and predictably delivered Program Increments
- ▶ Aggressively remove impediments and demotivators

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Notes:



Taking Action: Exemplifying SAFe's core values

Duration
5 min

- ▶ **Step 1:** Individually choose one of SAFe's four core values: Alignment, Transparency, Built-In Quality, and Program Execution
- ▶ **Step 2:** In your group, discuss how can you exemplify that core value in your organization
- ▶ **Step 3:** Write down one example in the Action Plan in your workbook



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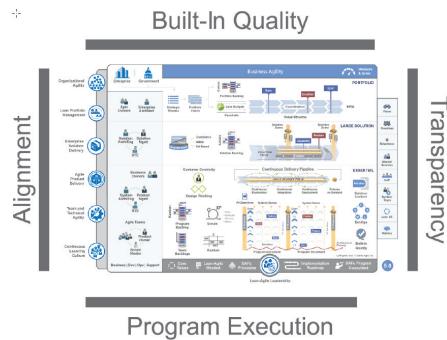
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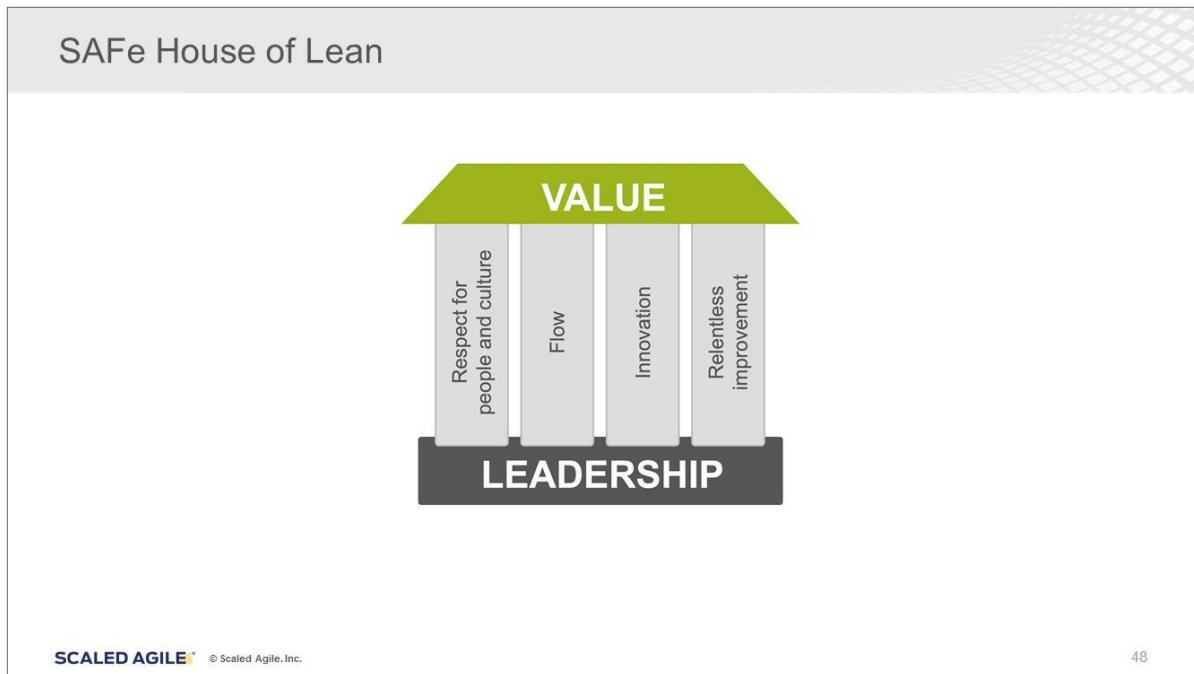
SAFe Agilist Action Plan

Exemplifying SAFe's Core Values

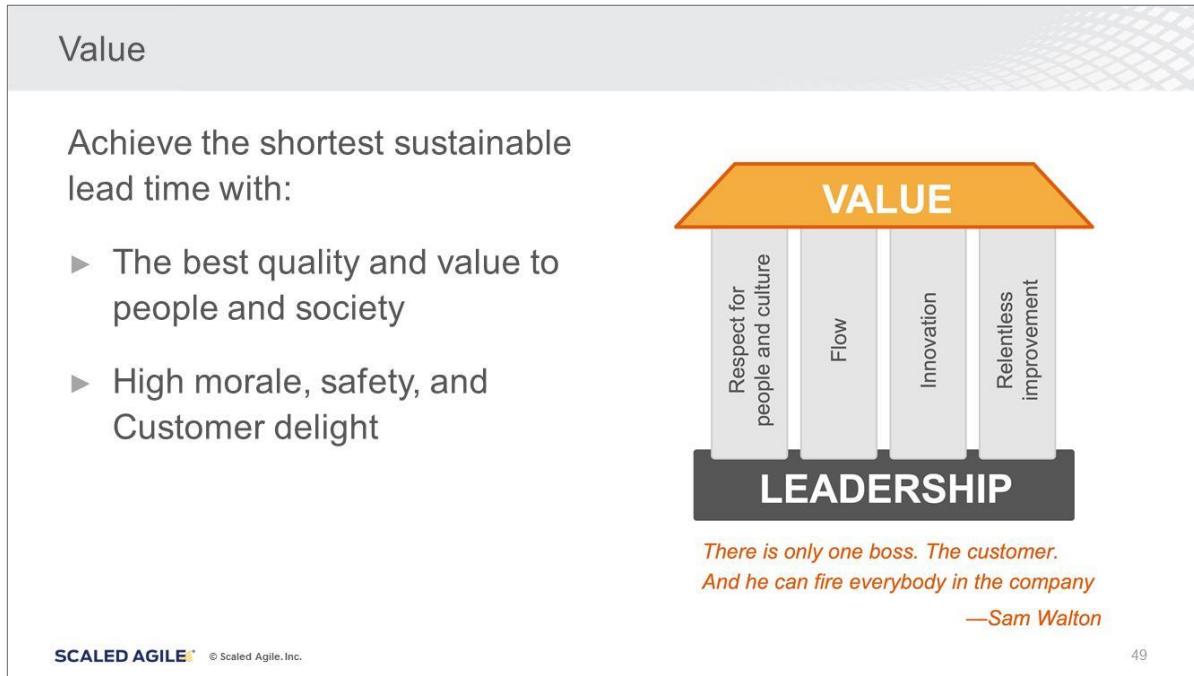


How can you exemplify one of the SAFe core values in your organization?

2.1 Embrace the Lean-Agile Mindset



Notes:

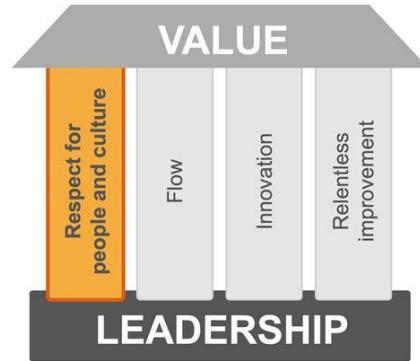


Notes:

2.1 Embrace the Lean-Agile Mindset

Respect for people and culture

- ▶ Generative culture
- ▶ People do all the work
- ▶ Your Customer is whoever consumes your work
- ▶ Build long-term partnerships based on trust
- ▶ To change the culture, you have to change the organization



Culture eats strategy for breakfast.

—Peter Drucker

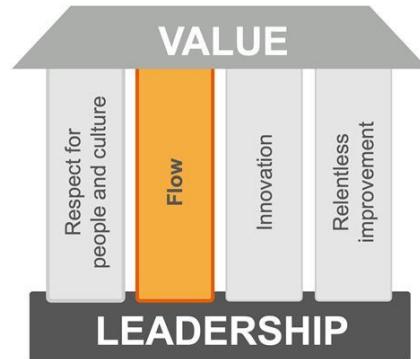
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Notes:

Flow

- ▶ Optimize sustainable value delivery
- ▶ Build-in quality
- ▶ Understand, exploit, and manage variability
- ▶ Move from projects to products



Operating a product development process near full utilization is an economic disaster.

—Don Reinertsen

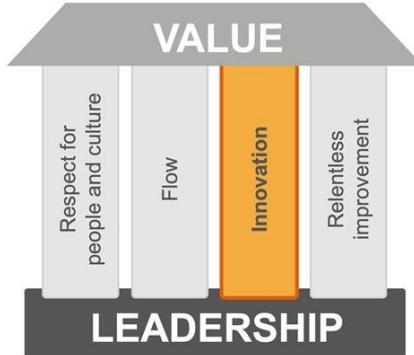
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Notes:

Innovation

- ▶ Innovative people
- ▶ Provide time and space for innovation
- ▶ Go see
- ▶ Experimentation and feedback
- ▶ Innovation riptides
- ▶ Pivot without mercy or guilt



Innovation comes from the producer.

—W. Edwards Deming

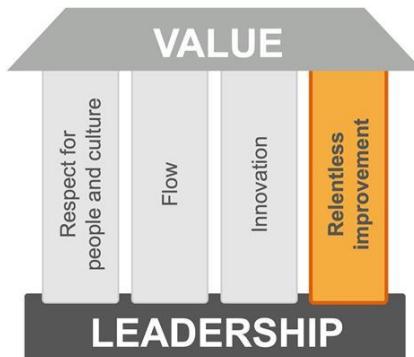
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Notes:

Relentless Improvement

- ▶ A constant sense of danger
- ▶ Optimize the whole
- ▶ Problem-solving culture
- ▶ Base improvements on facts
- ▶ Reflect at key Milestones



Those who adapt the fastest win.

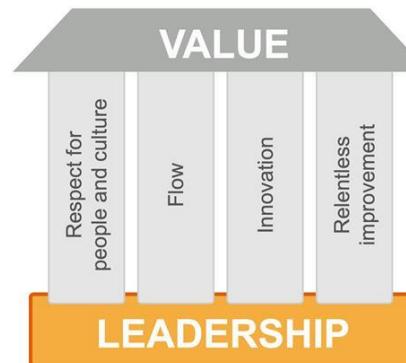
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Notes:

Leadership

- ▶ Lead by example
- ▶ Adopt a growth mindset
- ▶ Exemplify the values and principles of Lean-Agile and SAFe
- ▶ Develop people
- ▶ Lead the change
- ▶ Foster psychological safety



People are already doing their best; the problems are with the system. Only management can change the system

—W. Edwards Deming

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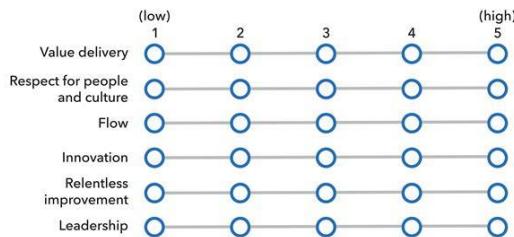
Notes:



Activity: Assessing a Lean mindset

Duration
5 min

- ▶ **Step 1:** Assess where your team stands in embracing a Lean mindset.
- ▶ **Step 2:** Discuss the results of the self-assessment. Do you have similar low or high scores?



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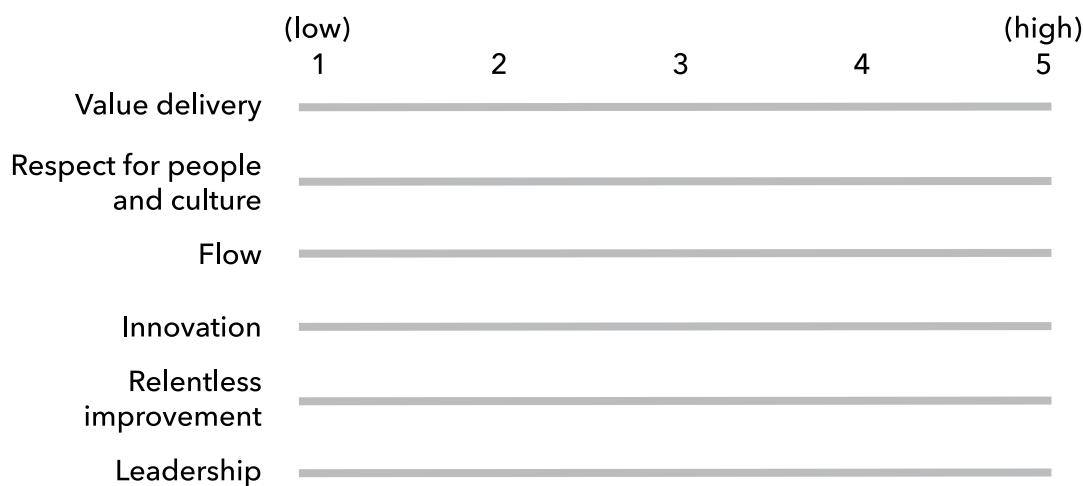
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Notes:

Lean Mindset Self-Assessment

Step 1: Assess where your team stands in embracing a Lean mindset.

Step 2: Discuss the results of the self-assessment. Do you have similar low or high scores?



Notes

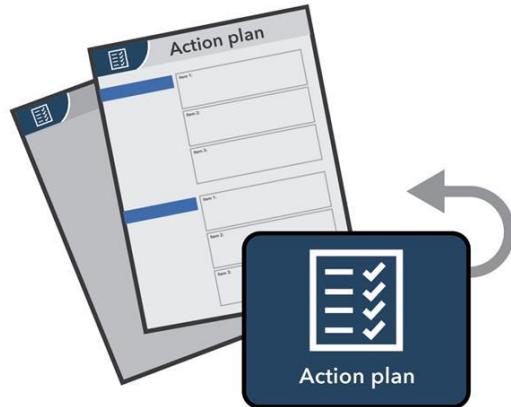
2.1 Embrace the Lean-Agile Mindset



Taking Action: Improving the Lean-Agile mindset

Prepare 3 min Share 2 min

- ▶ **Step 1:** Select one of the lowest scores in the assessment.
- ▶ **Step 2:** Brainstorm one to three actions you could take to improve this area.
- ▶ **Step 3:** Share your ideas with your group. Give and receive constructive suggestions on how the ideas offered can improve the mindset scores.
- ▶ **Step 4:** Write down one idea in your Action Plan and be prepared to share.



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Notes:



SAFe Agilist Action Plan

Improving the Lean-Agile Mindset



How can you improve the Lean-Agile mindset in your organization?

2.1 Embrace the Lean-Agile Mindset

The 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.

 agilemanifesto.org

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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:



Activity: Agile principles at scale



- ▶ **Step 1:** Review the principles behind the Agile Manifesto
- ▶ **Step 2:** Select one principle per group
- ▶ **Step 3:** Categorize as:
 - Works as is
 - Not applicable
 - Requires rethinking for scale
- ▶ **Step 4:** Share your findings with the class

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Notes:

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.
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.

Agile Principles at Scale

Instructions: Review the Agile Manifesto principles. Check the category for how the principle applies to implementation at scale in today's working environment.

Principles	Works as is	Not Applicable	Requires rethinking at scale
1. Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Deliver working software frequently, from a couple of weeks to a couple of months, with a preference for the shorter timescale.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Business people and developers must work together daily throughout the project.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Working software is the primary measure of progress.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Continuous attention to technical excellence and good design enhances agility.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Simplicity—the art of maximizing the amount of work not done—is essential.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. The best architectures, requirements, and designs emerge from self-organizing teams.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Notes

2.2 Apply Lean and Agile at scale with the SAFe Principles

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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

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Notes:

Why focus on the principles?

A common disease that afflicts management the world over is the impression that "Our problems are different." They are different to be sure, but the principles that will help to improve the quality of products and services are universal in nature.

—W. Edwards Deming

- ▶ A Lean-Agile transformation will deliver substantial benefits
- ▶ However, it is a significant change, and every implementation is different
- ▶ Leaders should understand why the practices work; it's part of 'knowing what it is they must do'
- ▶ If a practice needs to change, understanding the principles will assure the change moves the Enterprise in the right direction



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Notes:

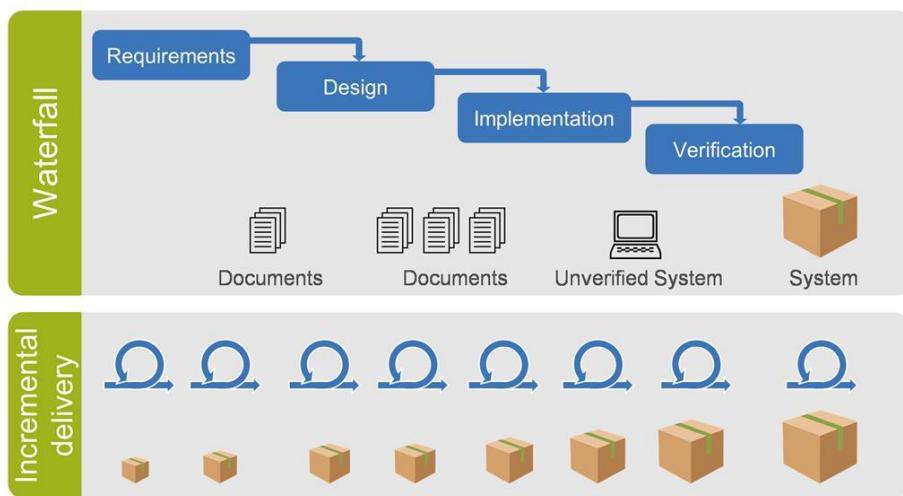
#1 Take an economic view

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Notes:

Agile economics: Deliver early and often

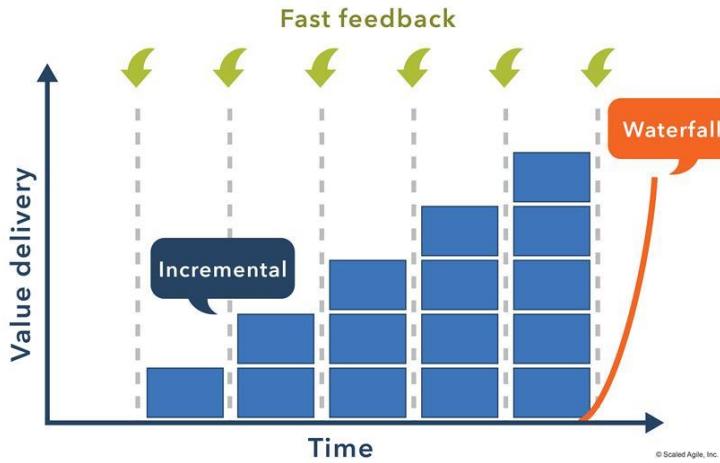


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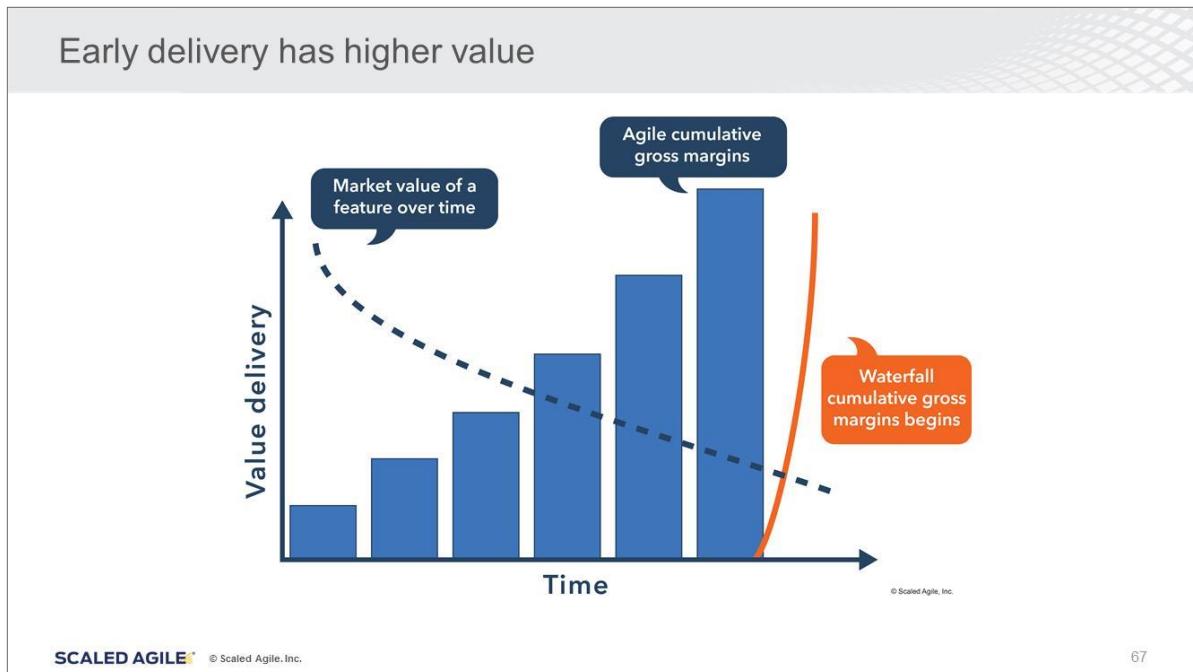
Deliver value incrementally



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Notes:



Notes:

 Activity: Accelerating value delivery

Prepare 5 min Share 2 min

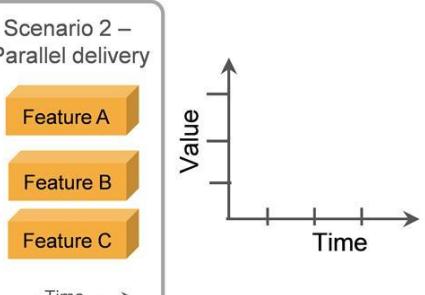
- ▶ **Step 1:** Consider that your backlog has three Features. Each will take the entire team one month and delivers one unit of value.
- ▶ **Step 2:** Plot the value delivery of serial and simultaneous/parallel implementation scenarios for delivering the Features.
 - **NOTE:** Assume 20% task switching overhead for each team member in Scenario 2
 - **HINT:** Plot the serial case first

Scenario 1 – Serial delivery



Time

Scenario 2 – Parallel delivery



Time

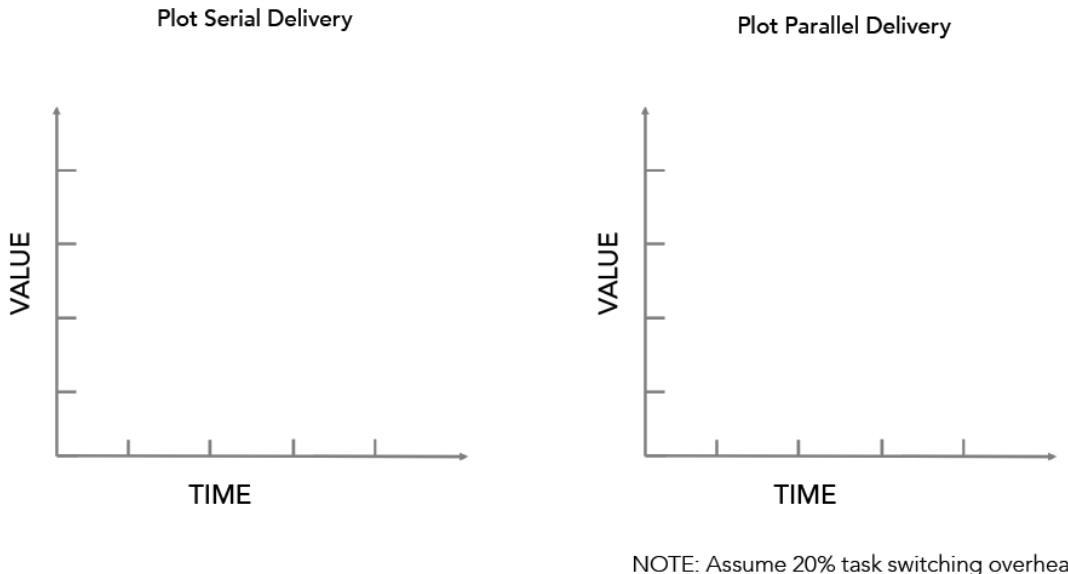
Value

Time

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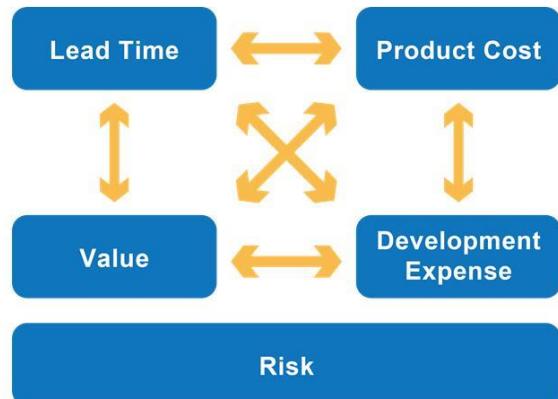
Notes:



Solution economic trade-offs

Understanding tradeoff parameters:

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



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Notes:

#2 Apply systems thinking

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Notes:

Systems thinking



A system must be managed. It will not manage itself.

*Left to themselves, components become selfish,
independent profit centers and thus destroy the system...*

*The secret is cooperation between components toward
the aim of the organization.*

—W. Edwards Deming

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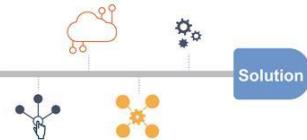
Notes:

Attributes of systems thinking

The Solution and the Enterprise are both affected by the following:

- ▶ Optimizing a component does not optimize the system
- ▶ For the system to behave well as a system, a higher-level understanding of behavior and architecture is required
- ▶ The value of a system passes through its interconnections
- ▶ A system can evolve no faster than its slowest integration point

The Solution itself is a system



The Enterprise building the system is a system too



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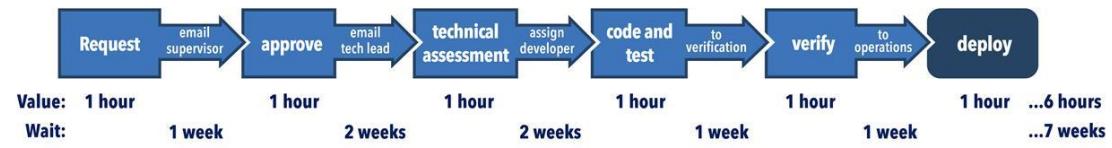
Notes:

Optimize the full Value Stream

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

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

Focus on the delays!



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Notes:



Discussion: Identifying delays

Prepare
3 min

Share
2 min

- ▶ **Step 1:** Identify three delays from your context and write them down.
- ▶ **Step 2:** Write down what you think might be some potential causes for the delays.
- ▶ **Step 3:** Consider how systems thinking relates to finding possible solutions for the delays. Who is ultimately responsible for the optimization of the full Value Stream?
- ▶ **Step 4:** Share your insights with the class.

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Notes:

Delay #1:



Potential cause:

Delay #2:



Potential cause:

Delay #3:



Potential cause:

#3 Assume variability; preserve options

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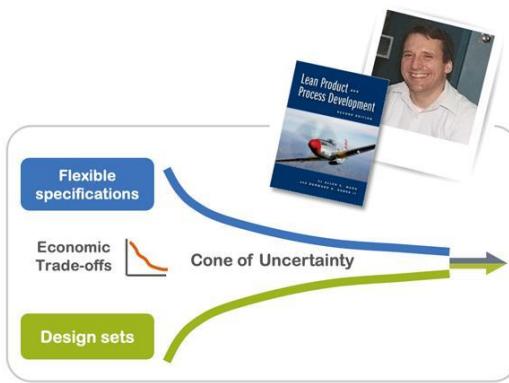
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Notes:

Development occurs in an uncertain world

Aggressively evaluate alternatives. Converge specifications and solution set. —Allen Ward

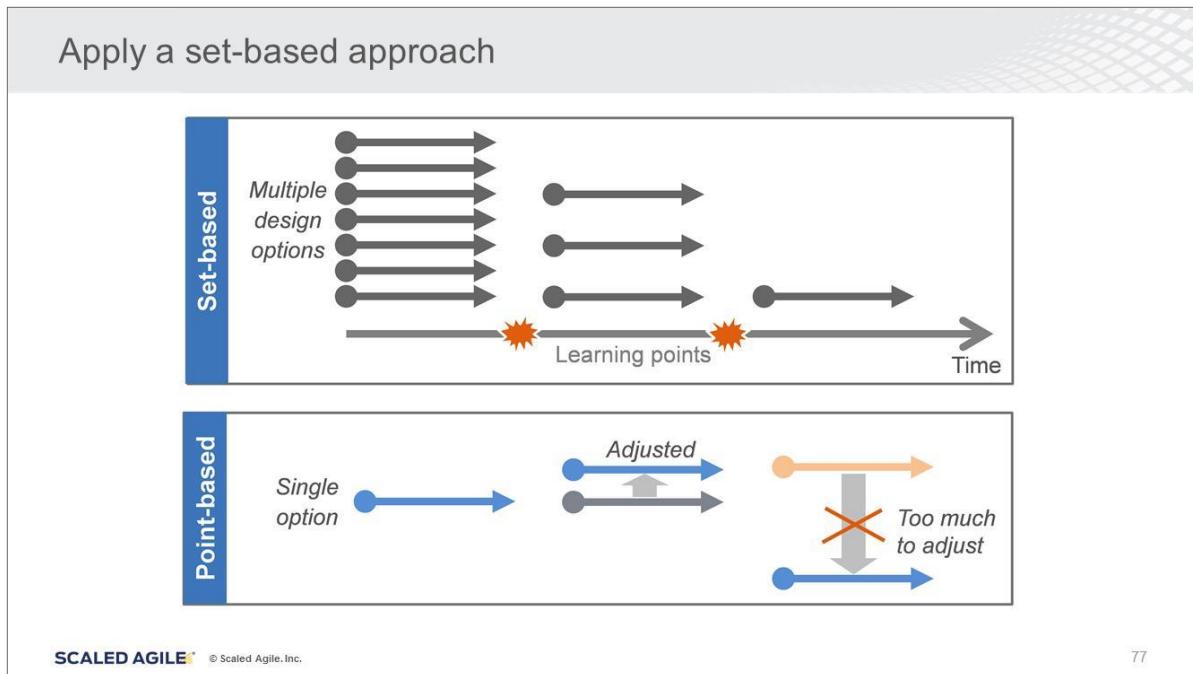
- ▶ You cannot possibly know everything at the start
- ▶ Requirements must be flexible to make economic design choices
- ▶ Designs must be flexible to support changing requirements
- ▶ Preservation of options improves economic results



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Notes:



Notes:



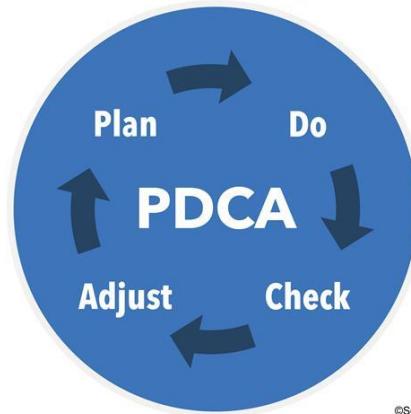
Notes:

Apply fast learning cycles

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

The shorter the cycles, the faster the learning

The iterative learning cycle



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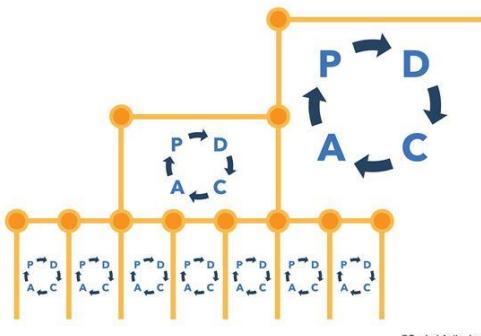
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Notes:

Integration points control product development

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



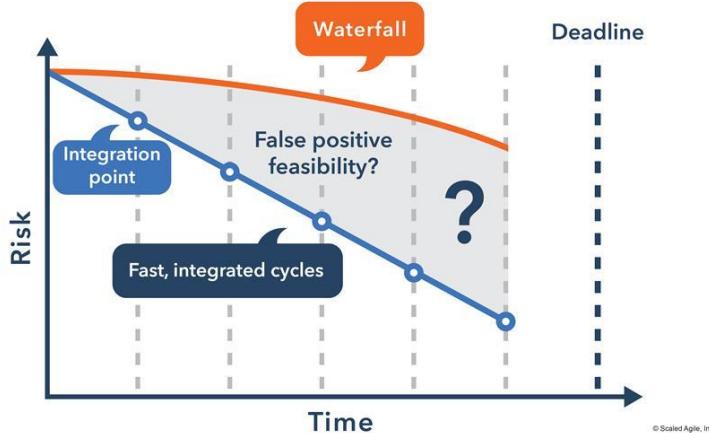
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Notes:

Integration points reduce risk



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Notes:

#5 Base milestones on objective evaluation of working systems

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Notes:

The problem of phase-gate milestones

There was in fact no correlation between exiting phase gates on time and project success... the data suggested the inverse might be true. —Lean Machine

- ▶ They force design decisions too early; this encourages false-positive feasibility.
- ▶ They assume a ‘point’ Solution exists and can be built correctly the first time.
- ▶ They create huge batches and long queues, and they centralize requirements and design in program management.



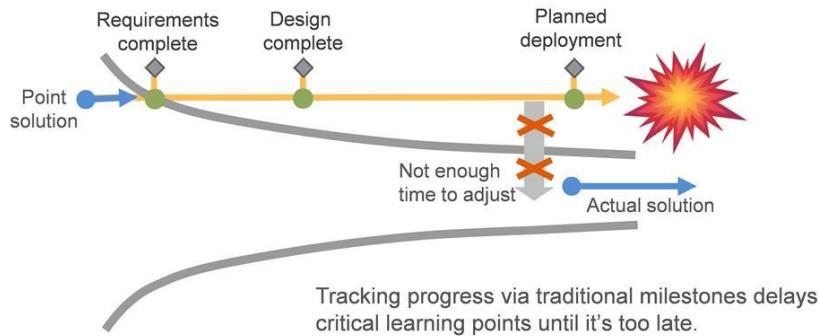
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Notes:

The problem of phase-gate milestones

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



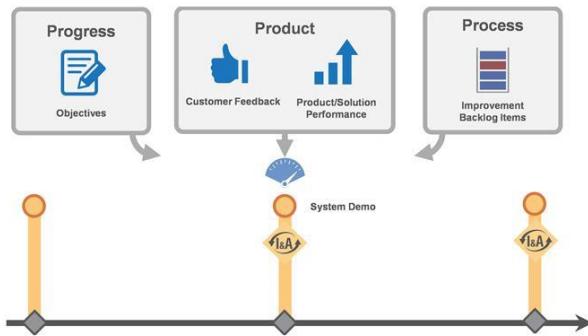
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Notes:

Apply objective Milestones

Program Increment (PI) System Demos are orchestrated to deliver objective progress, product, and process Metrics.



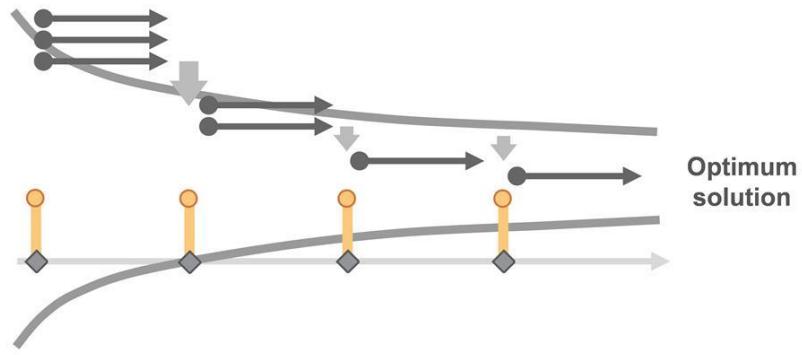
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Notes:

Iterate to the optimum solution

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



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Notes:

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

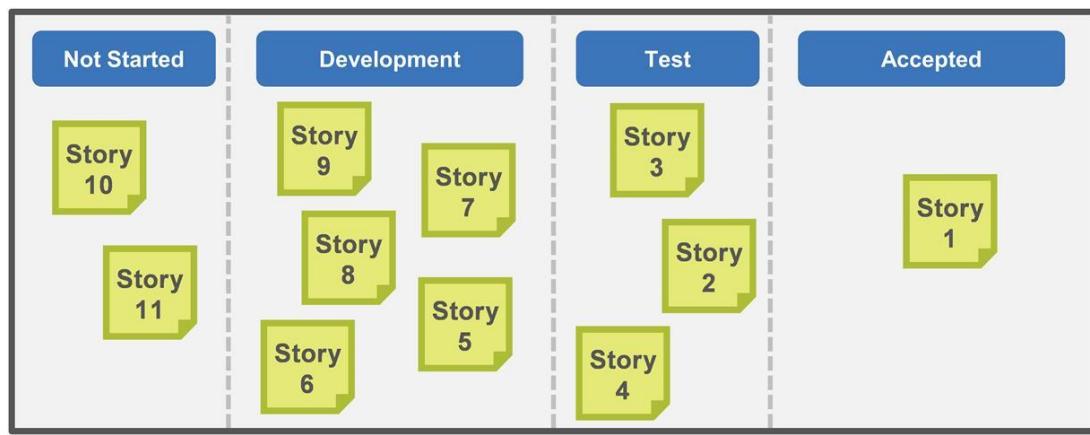
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Notes:

An example from the field

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



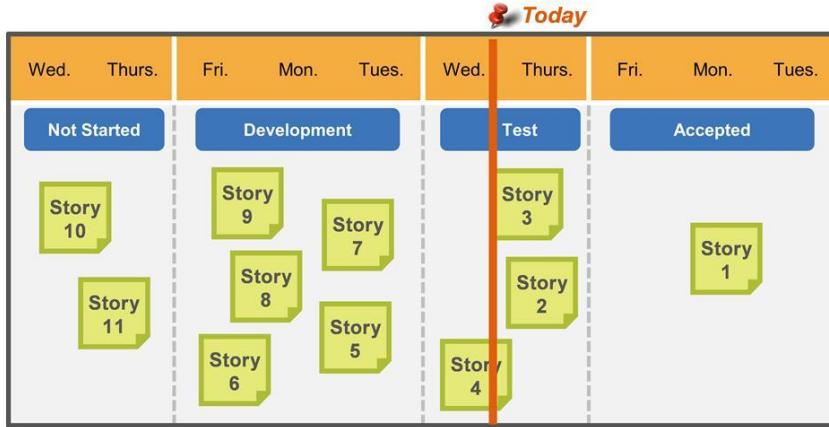
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Notes:

Visualize to increase understanding

Now how do you think they are doing?



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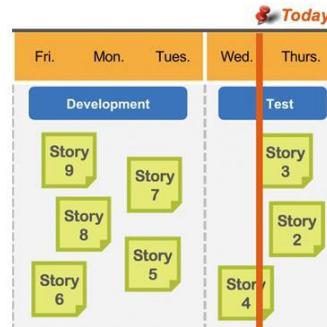
Notes:



Activity: WIP improvement opportunities



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

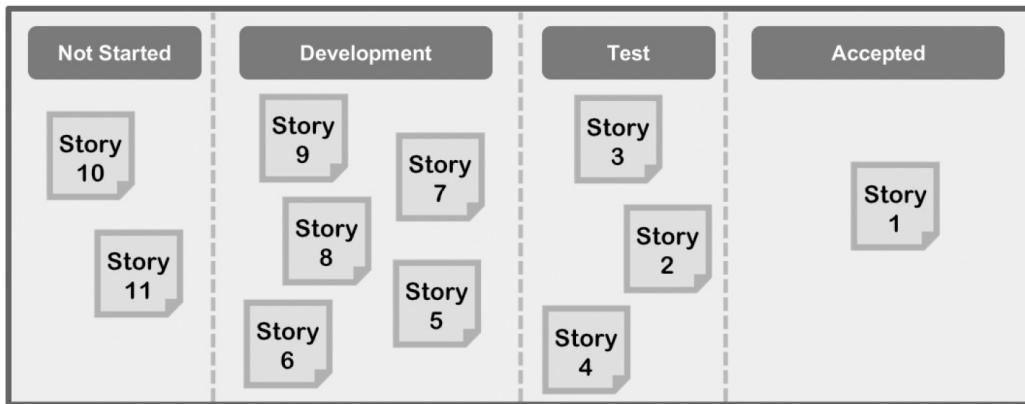


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Notes:

2.2 Apply Lean and Agile at scale with the SAFe Principles



What is the throughput if there is no WIP constraint?



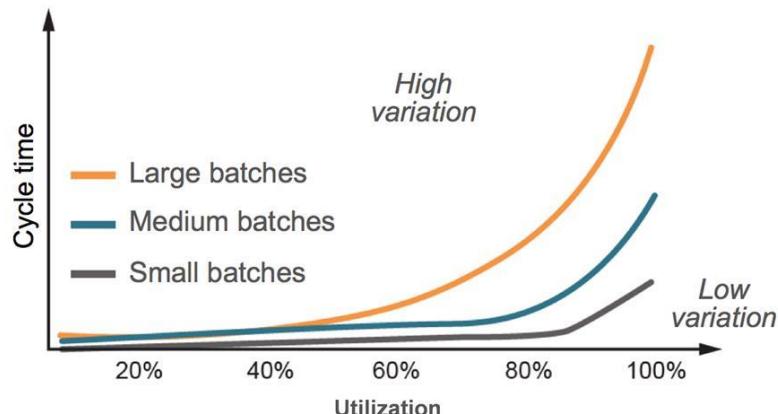
low | high

What is the throughput if there is a three-story WIP constraint?



low | high

Reduce batch size for higher predictability



Source: *Implementing Lean Software Development*, Poppendieck, Mary.

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Notes:



Activity: Experience a large batch size



- ▶ **Step 1:** Create groups of five people with 10 coins per group. Designate one person as the timekeeper. The remaining four people will be processing the coins.
- ▶ **Step 2:** Person by person, flip each coin one at a time, recording your own results (heads or tails).
- ▶ **Step 3:** Pass all coins at the same time to the next person, who repeats step two, until all four people are done
- ▶ **Step 4:** The timekeeper stops the timer and records the total time



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Notes:



Activity: Experience a small batch size

Duration
5 min

- ▶ **Step 1:** Ensure that the timekeeper is ready to start the timer
- ▶ **Step 2:** This time, each person flips one coin at a time, records the result (heads or tails), and immediately passes each coin to the next person
- ▶ **Step 3:** The timekeeper will stop the timer when the last person flips the last coin and records the result



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Notes:



Video links:

- Part 1 <https://bit.ly/2WWx4MM>
- Part 2 <https://bit.ly/2F9HFtC>
- Part 3 <https://bit.ly/2oEFQPj>

The importance of small batches

- ▶ Large batch sizes increase variability
- ▶ High utilization increases variability
- ▶ Severe project slippage is the most likely result
- ▶ Small batches go through the system faster with lower variability
- ▶ The most important batch is the handoff batch

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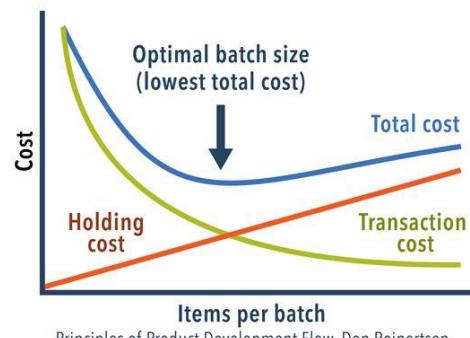
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Notes:

Finding optimal batch size

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

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



Principles of Product Development Flow, Don Reinertsen

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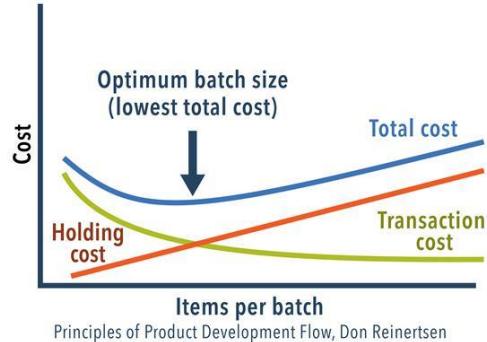
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Notes:

Reducing optimal batch size

Reducing transaction costs reduces total costs and lowers optimum batch size.

- ▶ Reducing batch size:
 - Increases predictability
 - Accelerates feedback
 - Reduces rework
 - Lowers cost
- ▶ Batch size reduction probably saves **twice** what you think



Notes:

Video: Formula 1 Pit Stops: 1950 and Today

Duration
2 min

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Notes:

Video link: https://youtu.be/RRy_73ivcms

Manage queue lengths

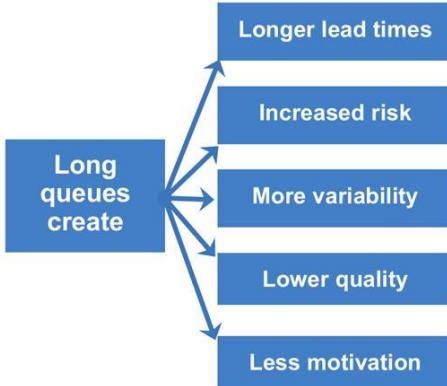
Email from a client service organization:

Thank you for contacting us. 

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

Our goal is to contact you within . . .

Long queues: All bad



Principles of Product Development Flow, Don Reinertsen

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Notes:

Reduce queue lengths

- ▶ Understand Little's Law
 - Faster processing time decreases wait
 - Shorter queue lengths decrease wait
- ▶ Control wait times by controlling queue lengths:
 - WIP limits, small batches, defer commitments

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

Average wait time = average queue length divided by average processing rate

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

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

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Notes:

#7 Apply cadence, synchronize with cross-domain planning

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Notes:

Cadence and synchronization

Cadence

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

Note: Delivering on cadence requires scope or capacity margin

Synchronization

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

Note: To work effectively, design cycles must be synchronized

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Notes:

Cadence without synchronization is not enough



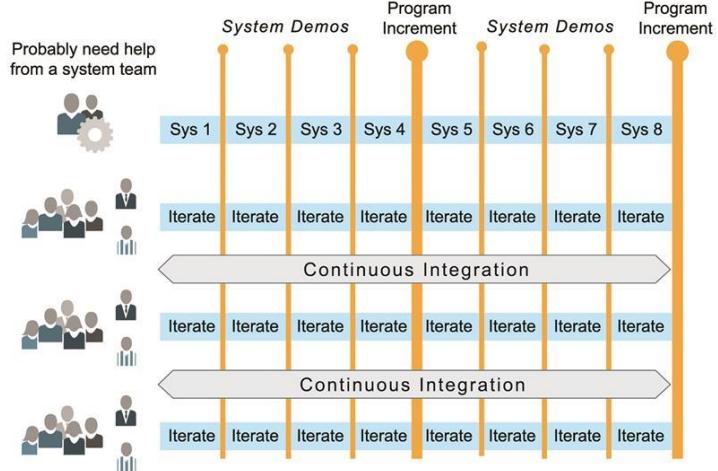
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Notes:

Synchronize to assure delivery

This system is iterating



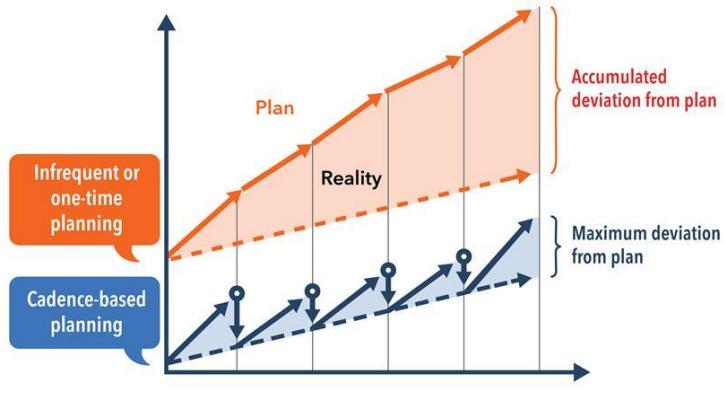
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Notes:

Control variability with planning cadence

Cadence-based planning limits variability to a single interval.



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Notes:

Synchronize with cross-domain planning

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

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

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



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Notes:

#8 Unlock the intrinsic motivation of knowledge workers

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Notes:

On managing knowledge workers

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



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

– Peter Drucker

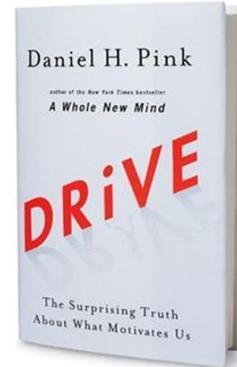
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Notes:

Unlocking intrinsic motivation with autonomy, mastery, and purpose

- ▶ **Autonomy** is the desire to be self-directing and have control over what we work on, how we do our work, and who we work with
- ▶ **Mastery** is the urge to get better at what we do and improve our personal and team skills
- ▶ **Purpose** is the desire to do something that matters and has meaning



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Notes:

#9 Decentralize decision-making

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Notes:

Video: Greatness by David Marquet

Duration
10 min

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Notes:



Video link: https://youtu.be/OqmdLcyES_Q

Decentralize decision-making

Define the economic logic behind a decision; empower others to make the changes.

Centralize	De-centralize everything else
▶ Infrequent - Not made very often and usually not urgent <i>(example: internationalization strategy)</i>	▶ Frequent - Routine, everyday decisions <i>(example: Team and Program Backlog)</i>
▶ Long-lasting - Once made, highly unlikely to change <i>(example: common technology platform)</i>	▶ Time critical - High cost of delay <i>(example: point release to customer)</i>
▶ Significant economies of scale - Provide large and broad economic benefit <i>(example: compensation strategy)</i>	▶ Require local information - Specific and local technology or customer context is required <i>(example: Feature criteria)</i>

Notes:



Activity: Decentralize decision-making

Prepare
3 min
Share
2 min

- ▶ **Step 1:** Consider three significant decisions you are currently facing. Write them in the table provided in your workbook.
- ▶ **Step 2:** Rate each decision based on the frequency, time criticality, and economies of scale, assigning the value of 2 or 0.
- ▶ **Step 3:** Add the total values: 0 – 3 centralize and 4 – 6 decentralize

Decision	Frequent? Y=2 N=0	Time-critical? Y=2 N=0	Economies of scale? Y=0 N=2	Total

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Notes:

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Decentralize Decision-making

Instructions:

Step 1: Consider three significant decisions you are currently facing. Write them down in the table provided in your workbook.

Step 2: Rate each decision based on the frequency, time criticality, and economies of scale, assigning the value of 2 or 0.

Step 3: Add the total values: 0 – 3 centralize and 4 – 6 decentralize

Decision	Frequent? Y=2 N=0	Time-critical? Y=2 N=0	Economies of scale? Y=0 N=2	Total

Notes

Keys to practicing decentralized decision making

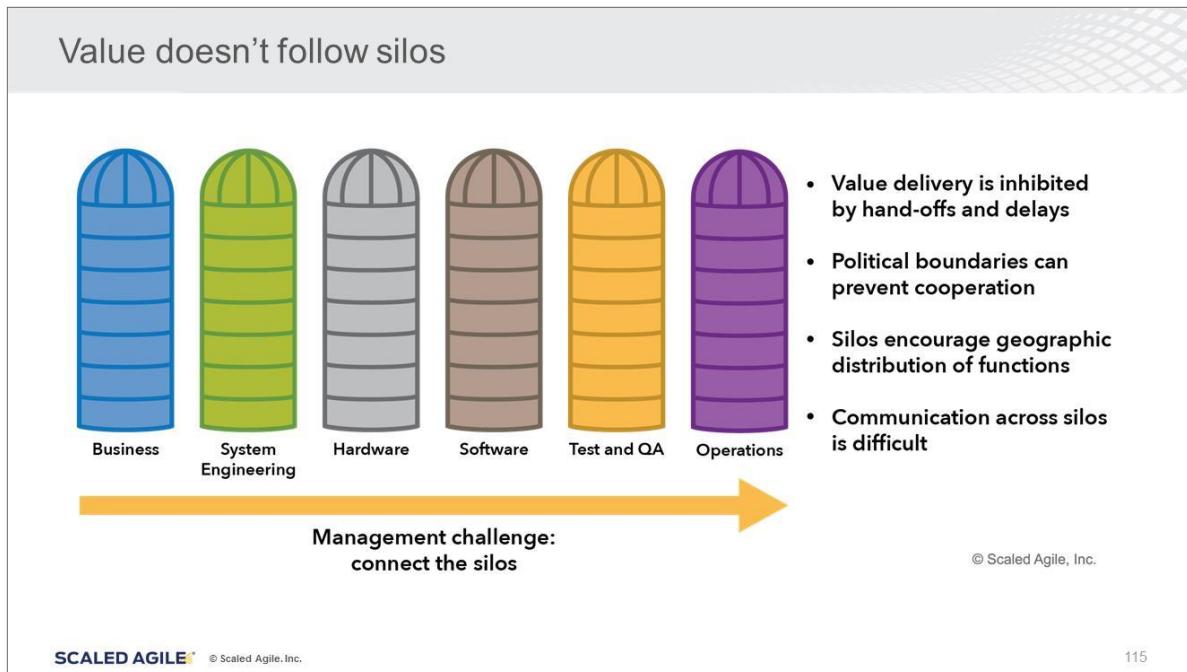
- ▶ Openly discuss how decisions are made and explore opportunities to move authority for those decisions closer to where the work is performed.
- ▶ Establish a decision-making framework that equips knowledge workers with the information to make good decisions.
- ▶ Provide clarity on organizational objectives, coach effective problem-solving, and provide opportunities to exercise and cultivate decision-making abilities.
- ▶ Take responsibility for making and communicating strategic decisions—those that are infrequent, long lasting, and have significant economies of scale. Decentralize all others.

Notes:

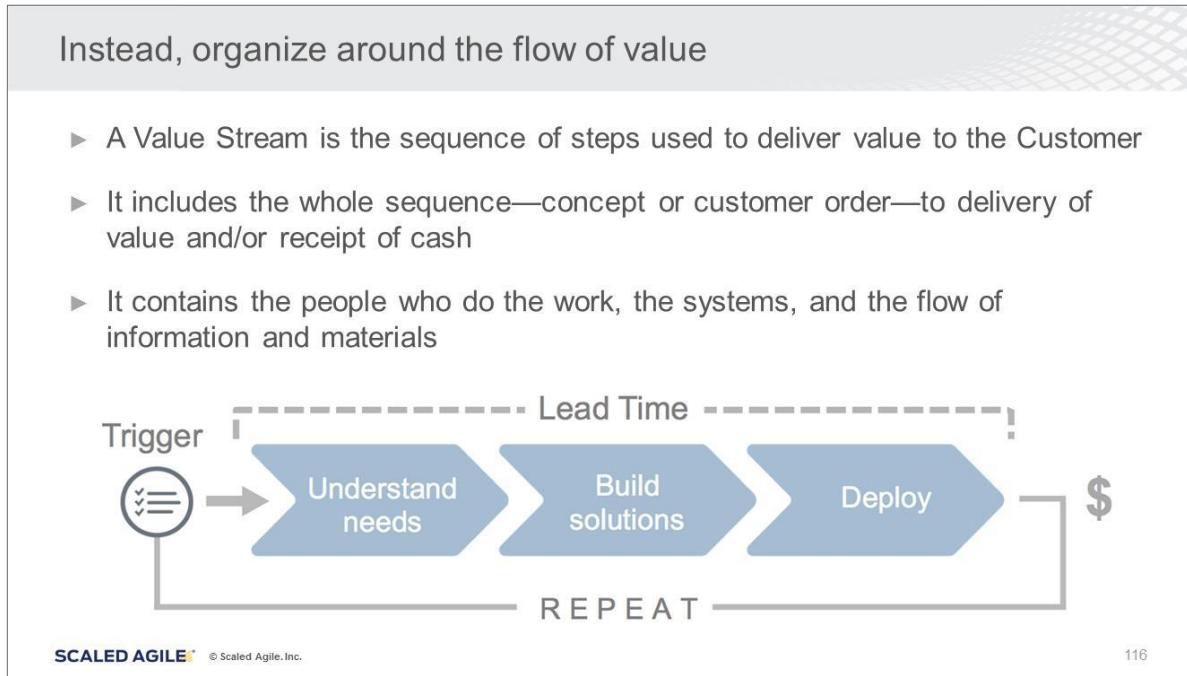
#10 Organize around value

Notes:

2.2 Apply Lean and Agile at scale with the SAFe Principles



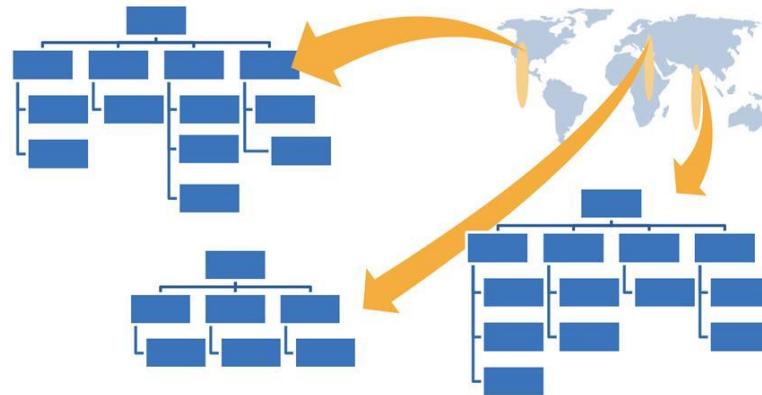
Notes:



Notes:

Value at scale is distributed

Value often flows across organizational boundaries.



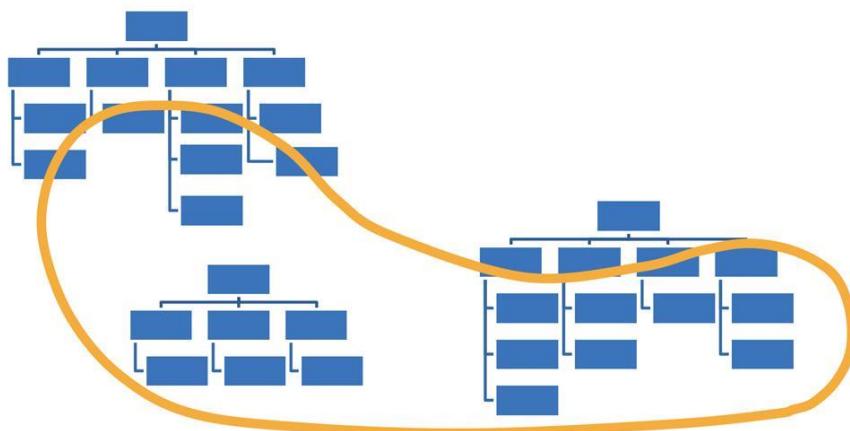
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Notes:

Find the 'kidney'

Use this thinking tool to identify the Value Stream within which to build one or more Agile Release Trains



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Notes:

Principles are great, but ...

*Clarity on how to **think**, without clarity on how to **act**, leaves people unmoved.*

—Daniel Pink

... it's time to put this thinking to work.

Let's start doing.

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Notes:

The diagram is titled "Taking Action: Advocating SAFe Principles". It features a blue header bar with a checklist icon on the left and two circular timers on the right labeled "Prepare 3 min" and "Share 2 min". Below the header, there is a large blue callout box containing three steps:

- ▶ **Step 1:** Individually identify three actions you can take to model and advocate SAFe Principles in your Enterprise.
- ▶ **Step 2:** Write them down in your Action Plan.
- ▶ **Step 3: In your group,** share some of the insights you gained from SAFe Principles.

On the right side of the callout box, there is an illustration of a document titled "Action plan" with a list of items. A large blue button labeled "Action plan" with a checklist icon is shown below the document. A curved arrow points from the "Action plan" button back towards the first step of the list.

At the bottom left of the callout box, there is a small "SCALED AGILE®" logo with the text "© Scaled Agile, Inc." To the right, the number "120" is displayed.

Notes:



SAFe Agilist Action Plan

Advocating SAFe 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

Identify three actions you can take to model and advocate SAFe principles in your enterprise.

Lesson review

In this lesson you:

- ▶ 2.1 Embraced the Lean-Agile Mindset
- ▶ 2.2 Applied Lean and Agile at scale with the SAFe Principles

Notes:

Scaled Agile Framework recommended reading for this lesson:



- [Core Values](#)
- [Lean-Agile Mindset](#)
- [Lean-Agile Leadership](#)

Lesson 2 notes



Enter your notes below:

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

Lesson 3

Establishing Team and Technical Agility

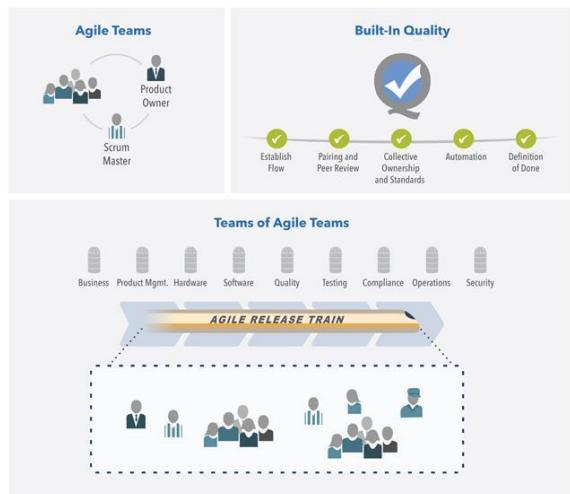
Learning Objectives:

- 3.1 Form cross-functional Agile Teams
- 3.2 Build quality in
- 3.3 Organize Agile Release Trains (ARTs) around the flow of value



SAFe® Course Attending this course gives students access to the SAFe® Agilist exam and related preparation materials.

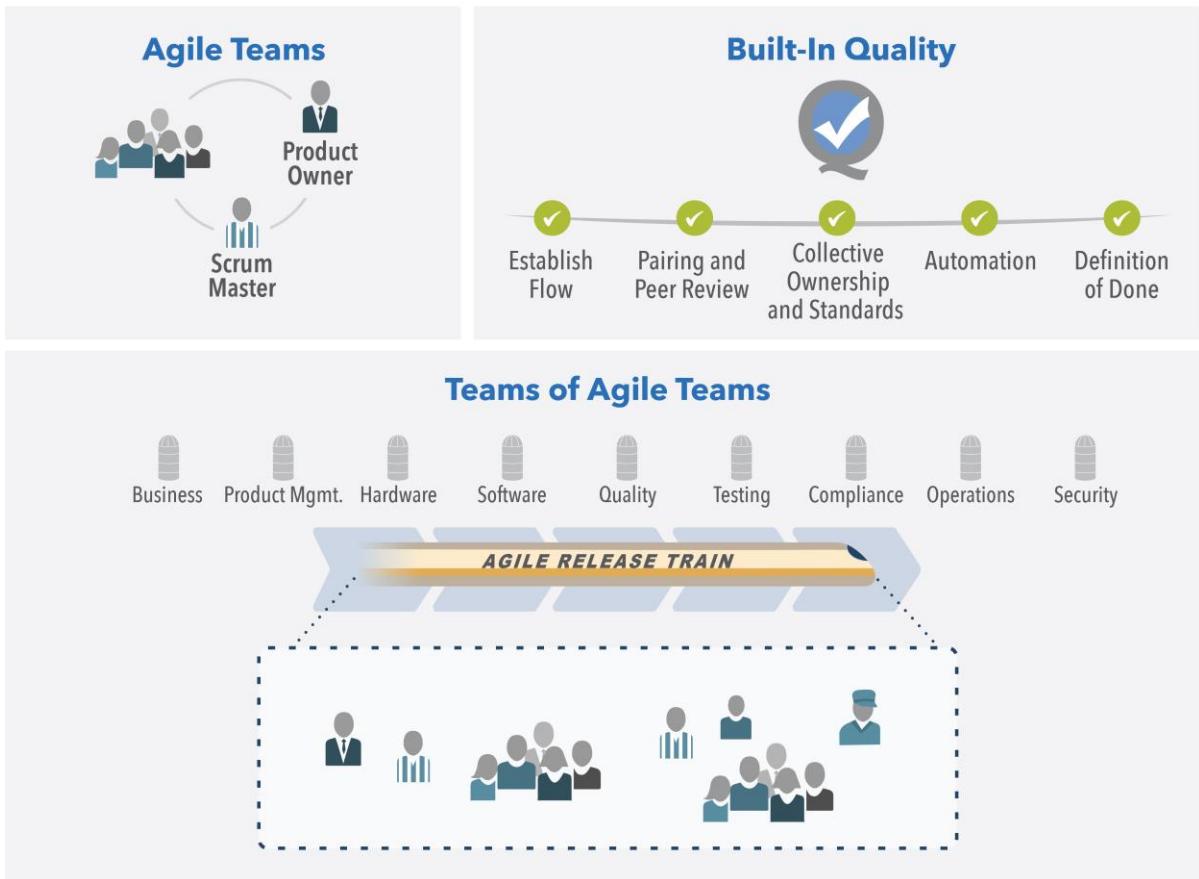
Team and Technical Agility



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Notes:



3.1 Form cross-functional Agile Teams

3.1 Form cross-functional Agile Teams

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Notes:

Build cross-functional Agile Teams

Agile Teams are cross-functional, self-organizing entities that can define, build and test, and where applicable, deploy increments of value

- ▶ Optimized for communication and delivery of value
- ▶ Deliver value every two weeks
- ▶ Two specialty roles:
 - Scrum Master
 - Product Owner



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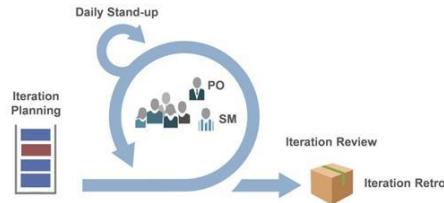
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Notes:

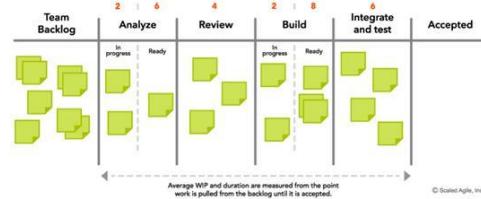
3.1 Form cross-functional Agile Teams

Teams execute Iterations with Scrum and Kanban

Scrum is built on transparency, inspection, adaptation, and short learning cycles



Kanban visualizes and optimizes the flow of work through the system



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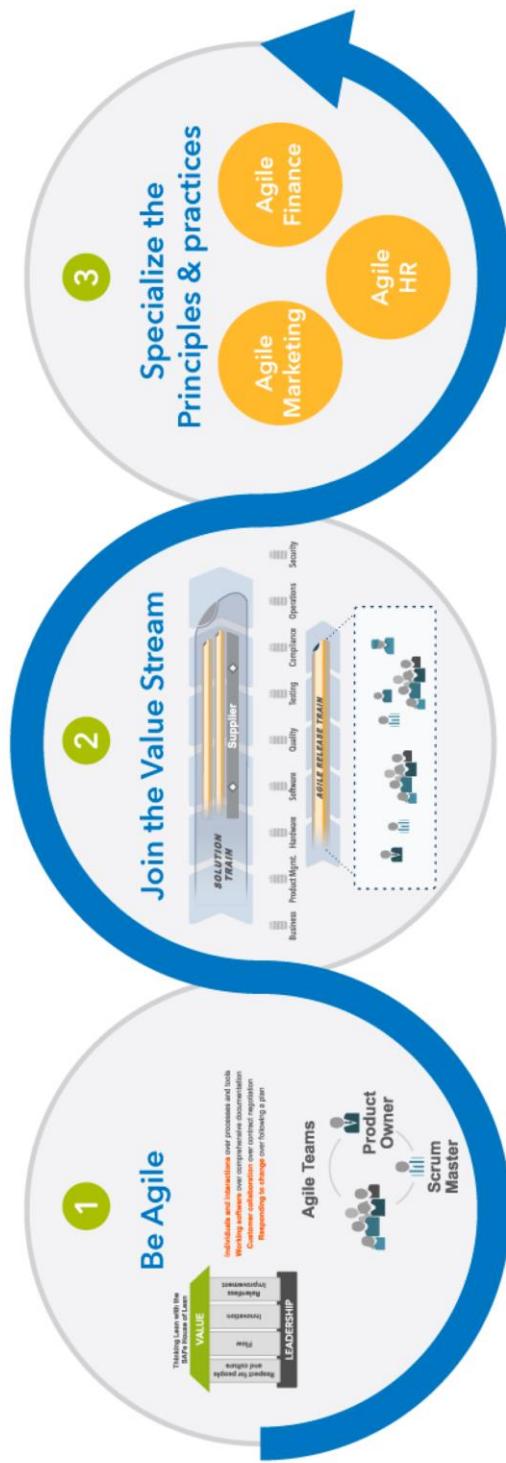
Notes:

Agile business teams foster true Business Agility

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Notes:



3.1 Form cross-functional Agile Teams

Roles and responsibilities on the Agile Team

Agile Team	Scrum Master	Product Owner
		
Agile Team <ul style="list-style-type: none">• Create and refine User Stories and acceptance criteria• Define, build, test, and deliver Stories• Develop and commit to team PI Objectives and Iteration plans• Five to eleven members	Scrum Master <ul style="list-style-type: none">• Coaches the Agile Team and facilitates team meetings• Removes impediments and protects the team from outside influence• Attends scrum of scrum meetings	Product Owner <ul style="list-style-type: none">• Defines and accepts Stories• Acts as the Customer for developer questions• Works with Product Management to plan Program Increments (PI)

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Notes:

Activity: Identify team names and roles

Duration: 2 min



- ▶ **Step 1:** Your team is your group. Create a team name.
- ▶ **Step 2:** Select a Scrum Master for your team.
- ▶ **Step 3:** Select a Product Owner for your team.
- ▶ **Step 4:** Make sure the team name and the names of the people selected are visible to all other teams
 - **Note:** In the next lesson, your team will experience PI Planning



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Notes:

3.2 Build quality in

3.2 Build quality in

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Notes:

Build quality in

You can't scale crappy code (or hardware, or anything else).

- ▶ Ensures that every increment of the Solution reflects quality standards
- ▶ Is required for high, sustainable development velocity
- ▶ Many practices apply to every team, whether business or technology:
 - Establish flow
 - Peer review and pairing
 - Collective ownership and standards
 - Automation
 - Definition of done

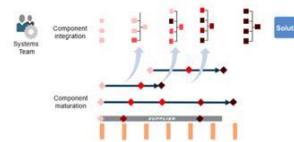
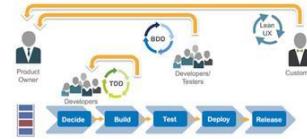
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Notes:

Built-in Quality practices for technology-focused teams

- ▶ Include software quality practices (most inspired by XP) like, Agile testing, behavior-driven development, test-driven development, refactoring, and code quality, Agile architecture
- ▶ Support hardware quality with exploratory, early iterations, frequent system-level integration, design verification, Model-Based Systems Engineering (MBSE), and Set-Based Design



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Notes:

3.3 Organize Agile Release Trains (ARTs) around the flow of value

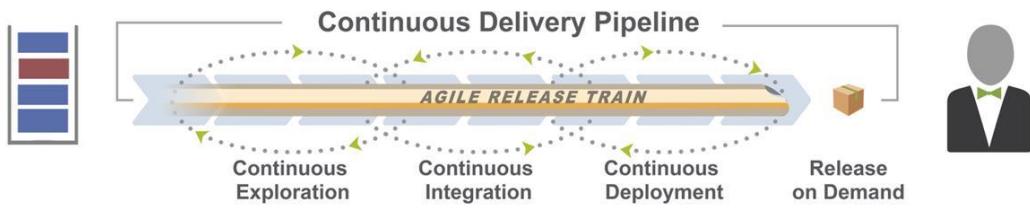
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Notes:

Agile Release Trains (ARTs) continuously deliver value

- ▶ A virtual organization of 5 – 12 teams (50 – 125+ individuals)
- ▶ Synchronized on a common cadence, a Program Increment (PI)
- ▶ Aligned to a common mission via a single Program Backlog

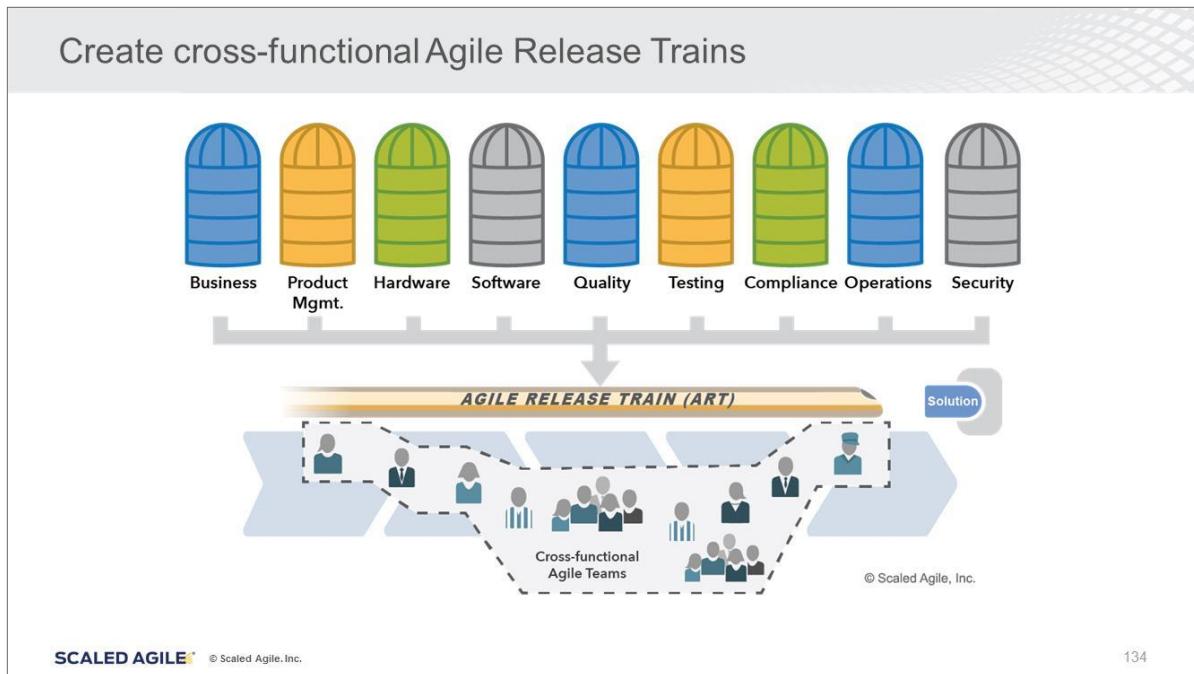


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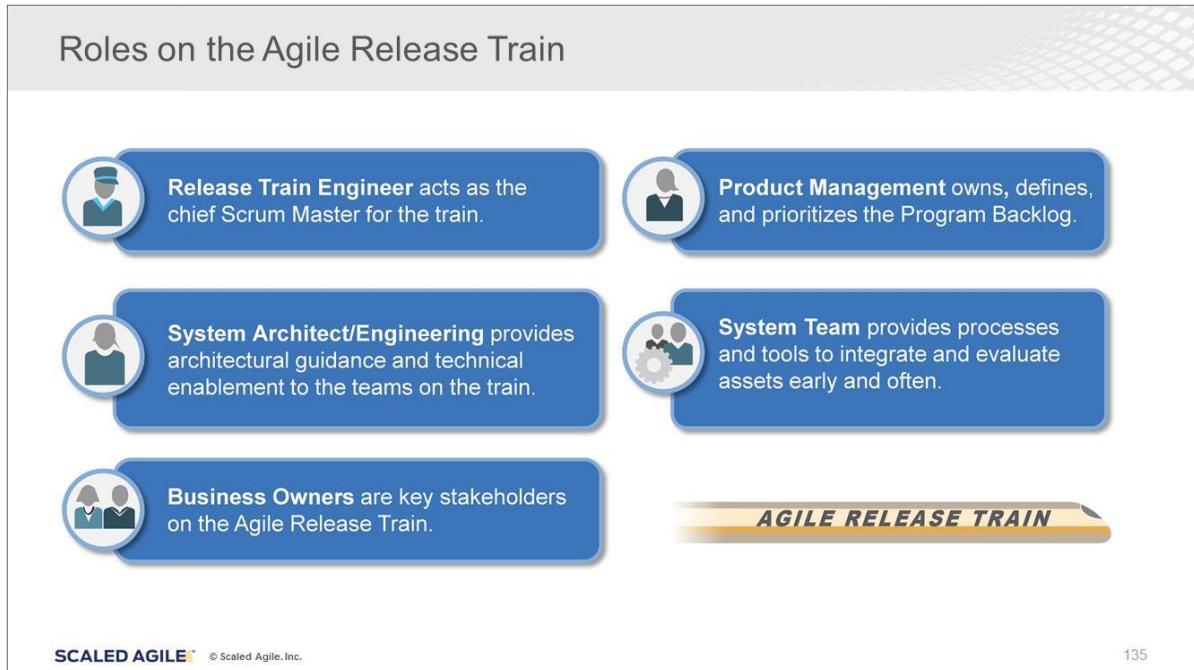
133

Notes:

3.3 Organize Agile Release Trains (ARTs) around the flow of value



Notes:



Notes:

Lesson review

In this lesson, you:

- ▶ Discussed how to form cross-functional Agile Teams
- ▶ Explored how to build quality in
- ▶ Discussed how to organize Agile Release Trains (ARTs) around the flow of value

Notes:

Scaled Agile Framework recommended reading for this lesson:



- [Team and Technical Agility](#)
- [Built-in Quality](#)
- [Agile Teams](#)
- [Agile Release Train](#)

Lesson 3 notes



Enter your notes below:

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

3.3 Organize Agile Release Trains (ARTs) around the flow of value

Lesson 4

Building Solutions with Agile Product Delivery

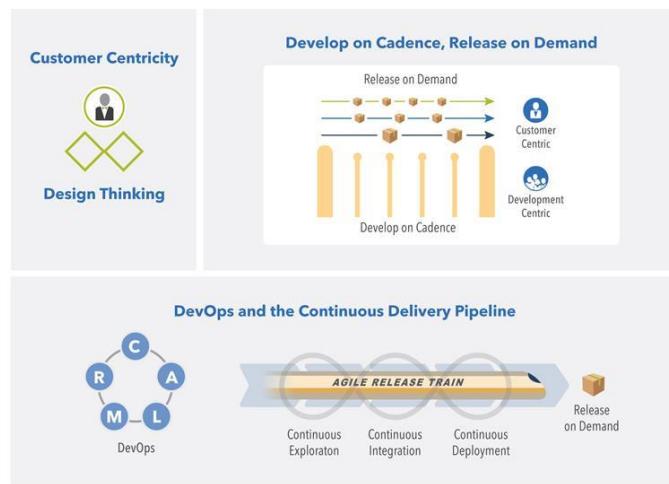
Learning Objectives:

- 4.1 Apply Customer Centricity with Design Thinking
- 4.2 Prioritize the Program Backlog
- 4.3 Participate in PI Planning
- 4.4 Develop on Cadence; Release on Demand
- 4.5 Build a Continuous Delivery Pipeline with DevOps



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Agile Product Delivery



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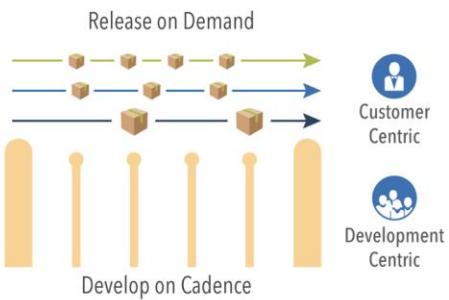
Notes:

Customer Centricity

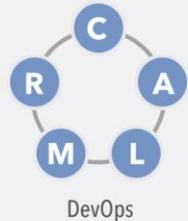


Design Thinking

Develop on Cadence, Release on Demand



DevOps and the Continuous Delivery Pipeline

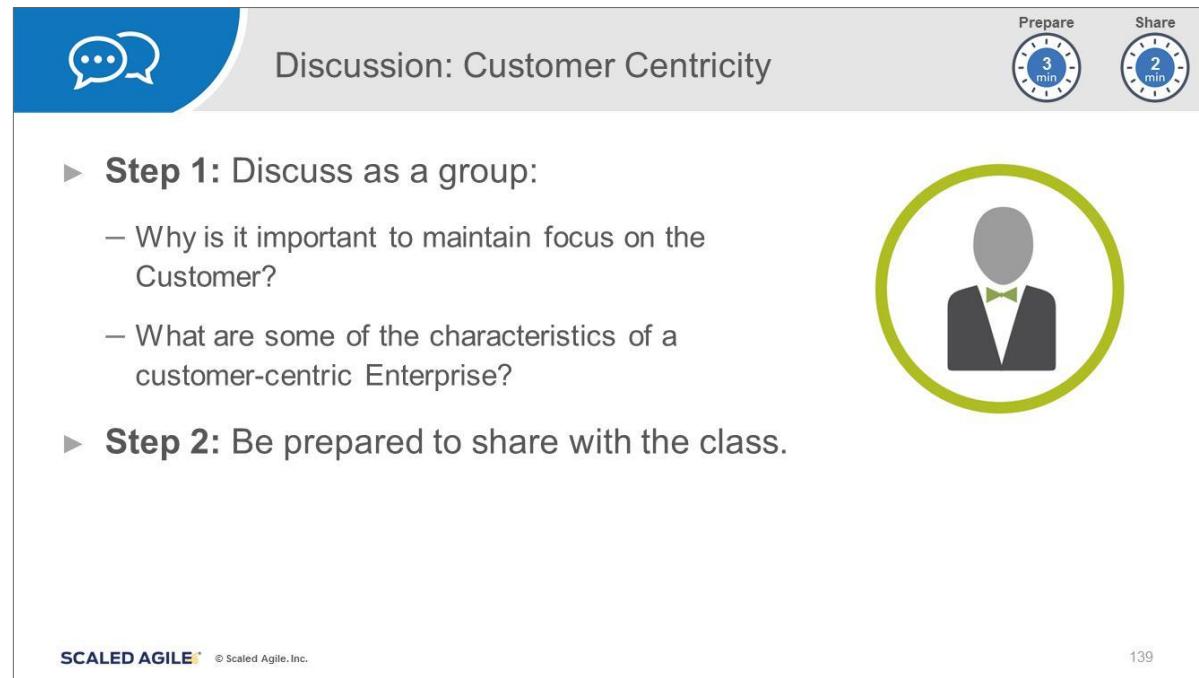


4.1 Apply Customer Centricity with Design Thinking

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Notes:



The slide features a blue header bar with a speech bubble icon and the text "Discussion: Customer Centricity". To the right are two circular icons: one labeled "Prepare" with a 3 min timer and another labeled "Share" with a 2 min timer. The main content area contains two sections: "Step 1: Discuss as a group:" with a list of questions, and "Step 2: Be prepared to share with the class." To the right of the list is a green-outlined circular icon containing a stylized human figure.

Discussion: Customer Centricity

Prepare 3 min Share 2 min

► **Step 1:** Discuss as a group:

- Why is it important to maintain focus on the Customer?
- What are some of the characteristics of a customer-centric Enterprise?

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

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Notes:

Why Customer Centricity?

Customer-centric Enterprises deliver whole-product Solutions that are designed with a deep understanding of Customer needs.

Customer-centric businesses generate:

- greater profits
- increased employee engagement
- more satisfied customers.



Customer-centric governments and nonprofits create:

- the resiliency, sustainability, and alignment needed to fulfill their mission.

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Notes:

Customer Centricity is a mindset

Whenever a customer-centric Enterprise makes a decision, it fully considers the effect it will have on its end users.



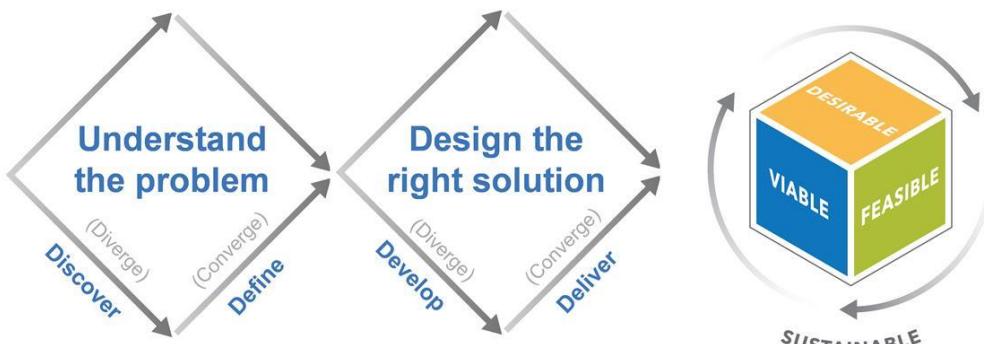
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Notes:

What is Design Thinking?

Design Thinking is an iterative Solution development process that promotes a holistic approach to delighting stakeholders.



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Notes:

Use personas to understand Customers

Personas are fictional characters based upon your research. They represent the different people who might use your product or Solution in a similar way.

- ▶ Convey the problems they're facing in context (i.e., 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



Cary the Consumer

Age: 36
Location: Reno, Nevada, USA
Time in App: 10 minutes

<p><i>"I'm a working dad with three children ages 3, 6, and 10. I'm also in a band, which means I want to spend as much time as possible with my kids and my band. I need my package delivered on time so that I can maximize time with my family."</i></p>		
I like technology! I have an iPhone, iPad, and nice home Wi-Fi setup	I'm not home on some weekends	I'd rather order online than dial the phone and talk to somebody
My wife also works during the week, so she doesn't have much spare time to help	Text is my favorite form of communication with suppliers	I don't own a computer, only tablets and phones

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Notes:



Cary the Consumer

Age: 36
Location: Reno, Nevada, USA
Time in App: 10 minutes

"I'm a working dad with three children ages 3, 6, and 10. I'm also in a band, which means I want to spend as much time as possible with my kids and my band. I need my package delivered on time so that I can maximize time with my family."

I like technology! I have an iPhone, iPad, and nice home Wi-Fi setup	I'm not home on some weekends	I'd rather order online than dial the phone and talk to somebody
My wife also works during the week, so she doesn't have much spare time to help	Text is my favorite form of communication with suppliers	I don't own a computer, only tablets and phones

Use empathy maps to identify with Customers

- ▶ The empathy map is a tool that helps teams develop deep, shared understanding and empathy for the Customer
- ▶ Use it to design better user experiences and Value Streams



Notes:

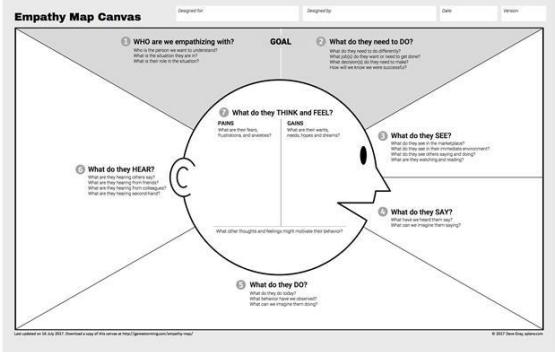


Activity: Empathy mapping

Prepare 7 min

Share 3 min

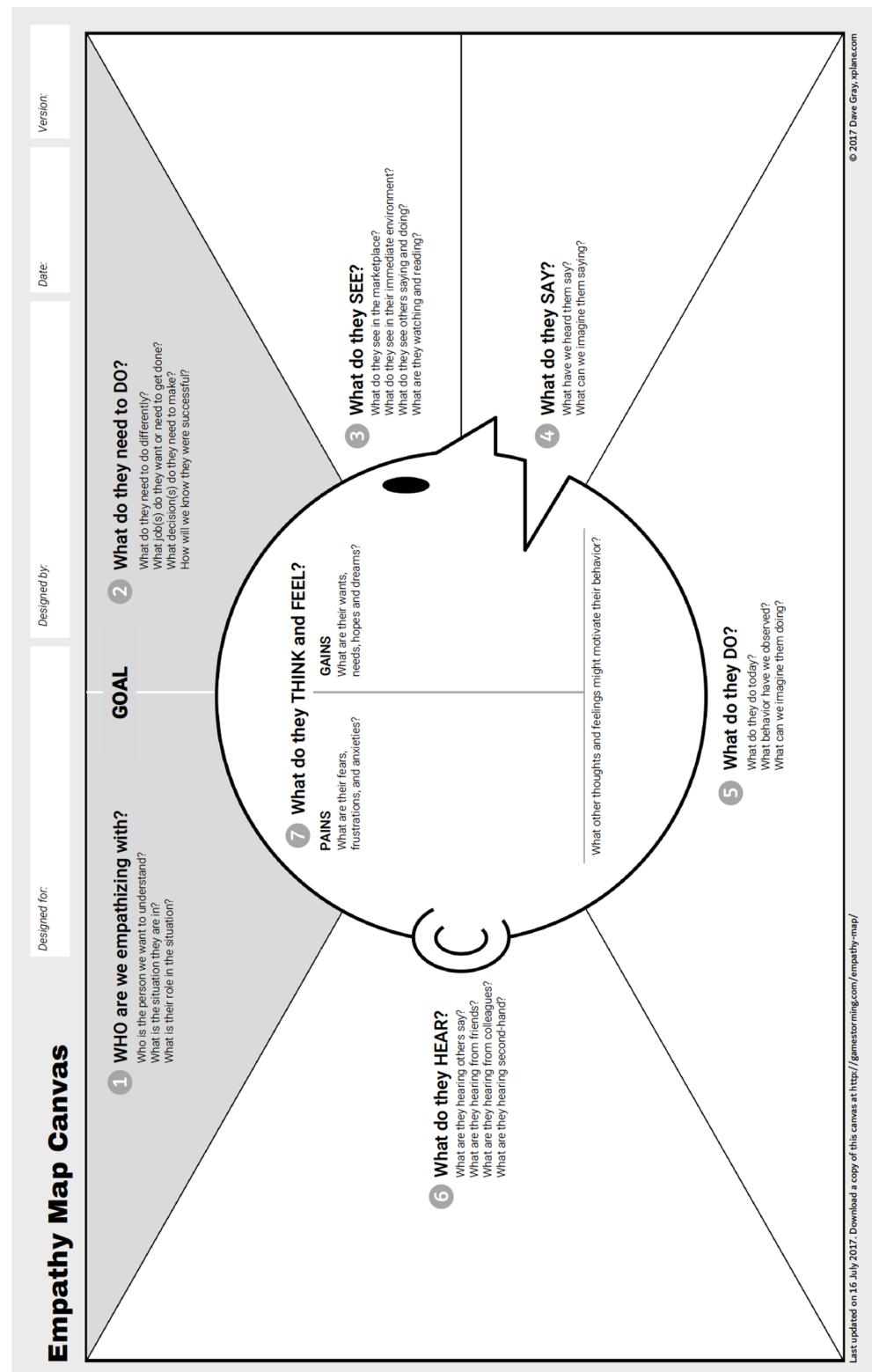
- ▶ **Step 1:** In your group, create an empathy map using the example in your workbook on a flip chart or use the template provided.
- ▶ **Step 2:** Select a user or customer of a product or service from one of the companies at your table.
- ▶ **Step 3:** Following the sequence of numbers, fill in each section of the empathy map.
- ▶ **Step 4:** Discuss with your group how the empathy map can inform Solution development. Be prepared to share your insights with the class.



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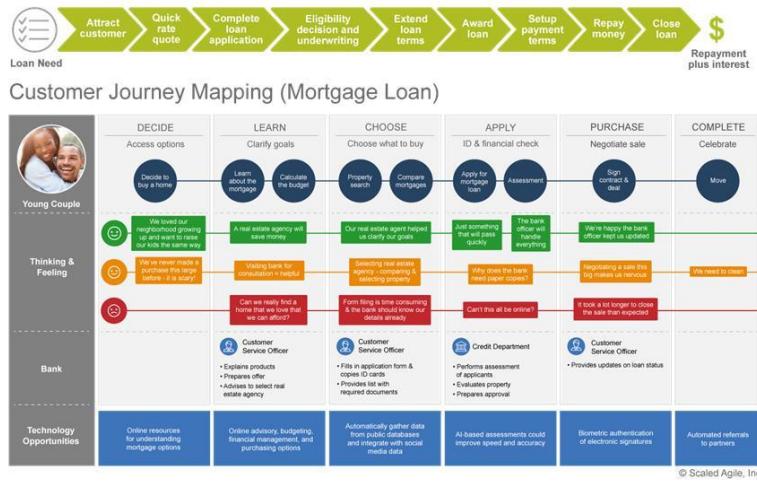
145

Notes:



4.1 Apply Customer Centricity with Design Thinking

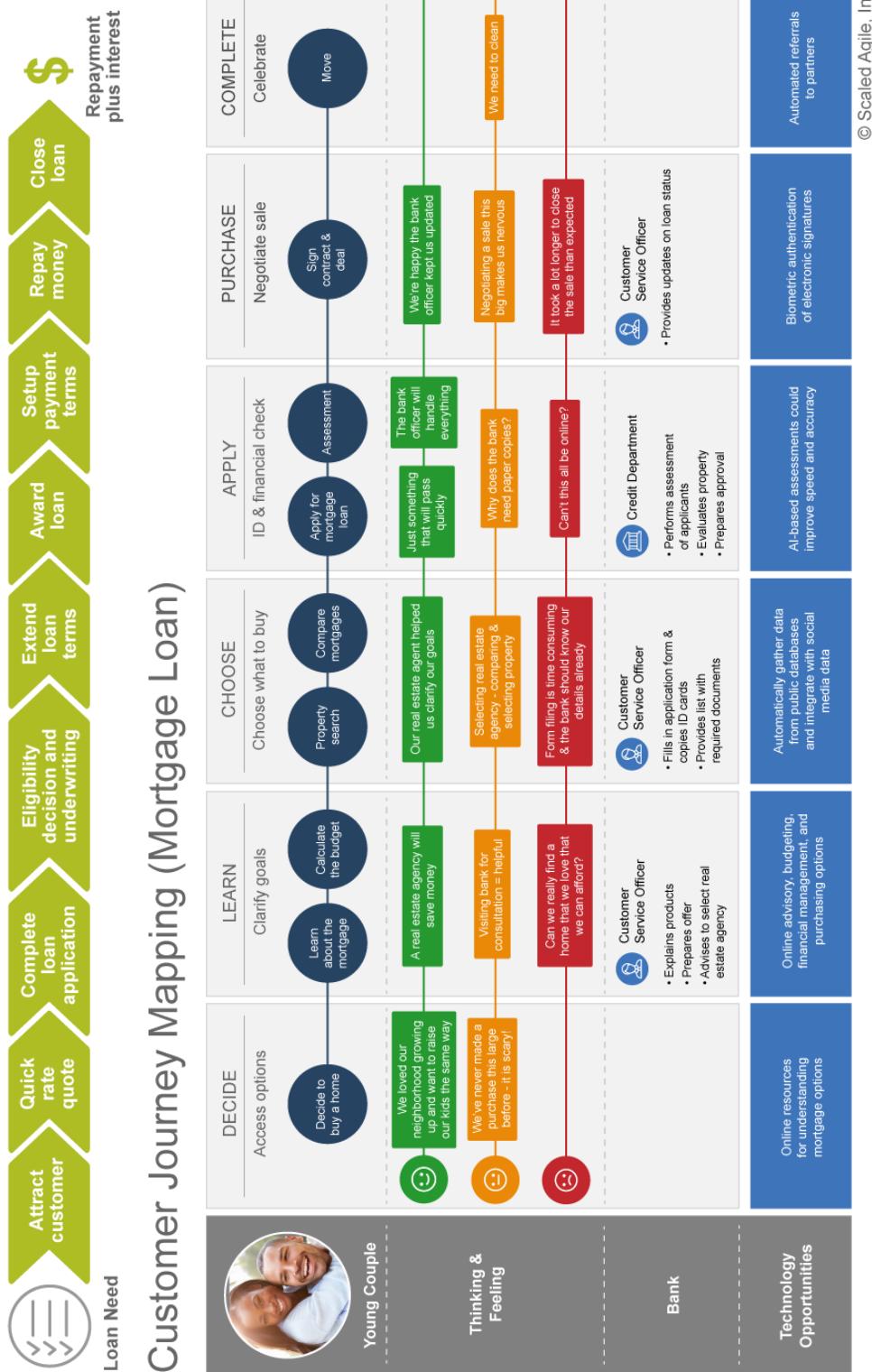
Use journey maps to design the end-to-end Customer experience

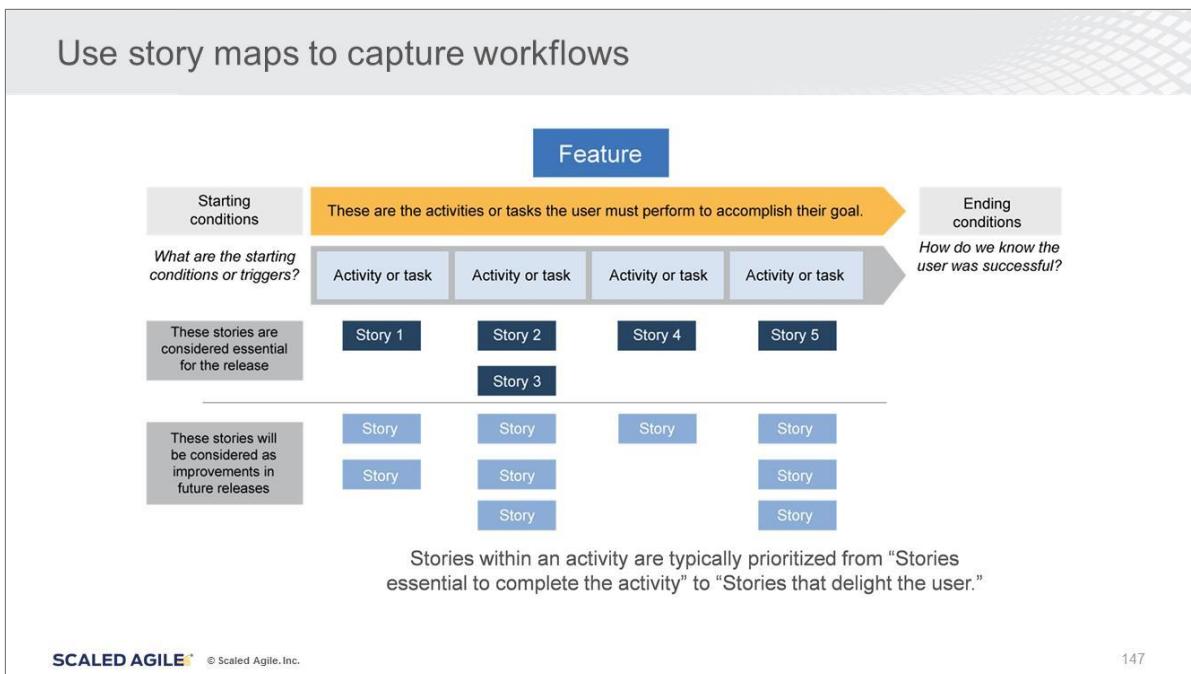


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Notes:





Notes:

4.2 Prioritize the Program Backlog

4.2 Prioritize the Program Backlog

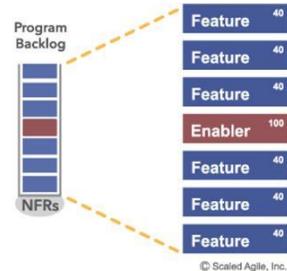
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Notes:

Features are managed through the Program Backlog

The Program Backlog is the holding area for upcoming Features, that will address user needs and deliver business benefits for a single Agile Release Train (ART).



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Notes:

Vision aligns everyone on the product's direction

The Vision is a description of the future state of the product

- ▶ How will our product solve our customer's problems?
- ▶ What Features does it have?
- ▶ How will it differentiate us?
- ▶ What Nonfunctional Requirements does it deliver?



Notes:

Features represent the work for the Agile Release Train

- ▶ Feature is an industry-standard term familiar to marketing and Product Management
- ▶ A benefit hypothesis justifies Feature implementation cost and provides business perspective when making scope decisions
- ▶ Acceptance criteria are typically defined during Program Backlog refinement
- ▶ Reflect functional and nonfunctional requirements
- ▶ Fits in one PI

Example:

Multi-factor authentication

Benefit hypothesis

Enhance user security via both password and a device.

Acceptance criteria

1. USB tokens as a first layer
2. Password authentication second layer
3. Multiple tokens on a single device
4. User activity log reflecting both authentication factors

Notes:



Activity: Describe three Features

Prepare
7 min

- ▶ **Step 1:** Individually identify three Features from your context
- ▶ **Step 2:** In your workbook, write down the Features and the benefit hypothesis for these Features
- ▶ **Step 3:** Choose one of the Features and write down some acceptance criteria for it

Example:

Feature:
Multi-factor authentication

Benefit
Hypothesis:
Enhance user security via both password and a device.

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Notes:

Describe Features

Instructions: Individually identify three Features from your context. In the space provided, write the Features and benefit hypothesis for these Features. Choose one of the Features to discuss with your group and write some acceptance criteria.

Feature: Multi-factor authentication

Benefit Hypothesis: Enhance user security via both password and a device.

Feature:

Benefit Hypothesis:

Feature:

Benefit Hypothesis:

Feature:

Benefit Hypothesis:

Features are implemented by Stories

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

Enabler Story

Relocate mount for obstacle sensor to the top bracket so that it has a full 360° around the vehicle.

Enabler Stories represent different types of work, such as: *Exploration, Architecture, Infrastructure, Compliance*

Business Feature

Feature: Avoid obstacles unique to government installations
Benefit hypothesis: Characterize sensor's ability to detect and process obstacles unique to government installations

User Story

As an obstacle sensor I can track a single obstacle that continually changes speed and directions - like carts, pedestrians, forklifts, etc. So that vehicle control can respond to the obstacle's dynamic behavior

Notes:

Estimate Stories with relative Story points

- ▶ 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.

How big is it?



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

Notes:

Apply estimating poker for fast, relative estimating

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



Steps

- 1 Each estimator gets a deck of cards
- 2 Reads a job
- 3 Estimators privately select cards
- 4 Cards are turned over
- 5 Discuss differences
- 6 Re-estimate

Source: Mike Cohn, Agile Estimating and Planning

Notes:

Estimation is a whole-team exercise

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



The whole team estimates Stories

Warning: Estimation performed by a Manager, Architect, or select group negates these benefits.

Notes:



Activity: Relative size estimating

Prepare 5 min Share 3 min

Use estimating poker to relatively estimate the mass of a set of animals.

▶ **Step 1:** In your groups, identify the smallest animal and mark it as **1**

▶ **Step 2:** Estimate the remaining animals using values **1, 2, 3, 5, 8, 13, 20, 40, 100**



			
Chicken	Horse	Crocodile	Giraffe
			
Gorilla	Hyena	Elephant	

Notes:

Relative Size Estimating

Think in relative sizing of these animals. Which one would be smallest? Mark it as 1.

At your table, you will find a deck of Estimating Poker cards. As a team, use the cards to estimate the remaining of the animals.

If you identify the Hyena as 1. How would you relatively estimate the horse for example?



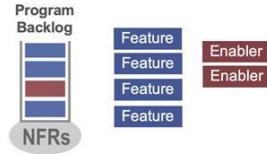
Prioritize Features for optimal ROI

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

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

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

If you only quantify one thing, quantify the Cost of Delay. - Donald G. Reinertsen



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Notes:



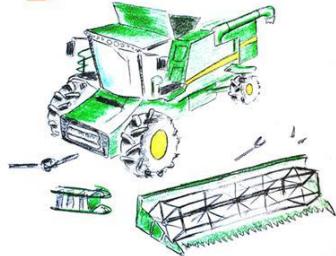
Video link: <https://share.vidyard.com/watch/an1uBZCb5UofhY9WTmH2Xx?>

Example with equal CoD: Which job first?

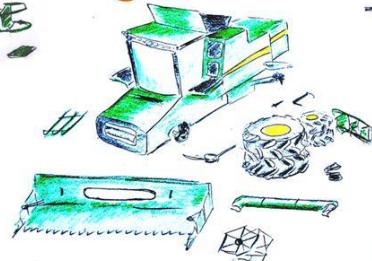
A \$\$, 1 day



B \$\$, 3 days



C \$\$, 10 days



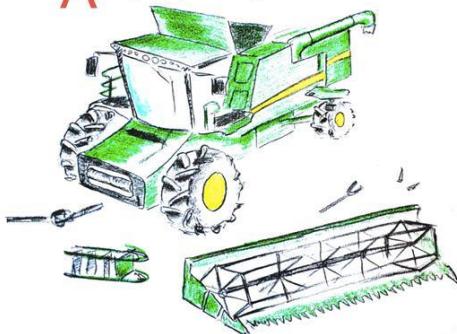
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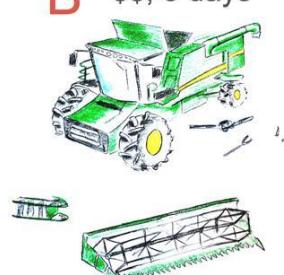
Notes:

Example with equal duration: Which job first?

A \$\$\$, 3 days



B \$\$, 3 days



C \$, 3 days



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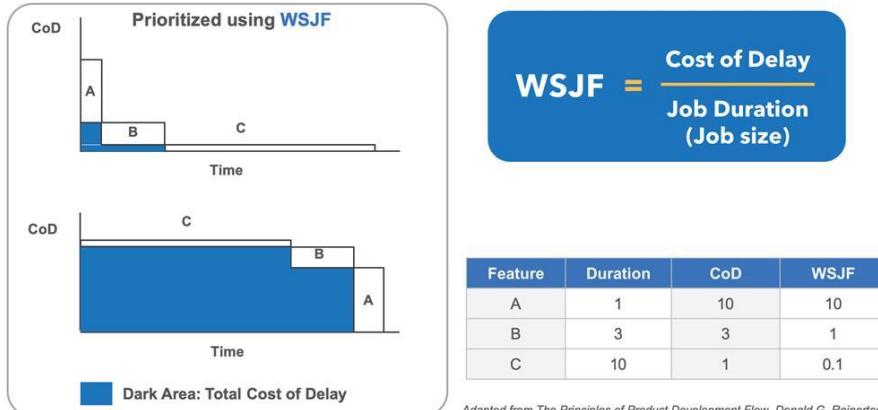
160

Notes:

4.2 Prioritize the Program Backlog

General case: Any Cost of delay (CoD) and duration

In the general case, give preference to jobs with shorter duration and higher CoD, using Weighted Shortest Job First (WSJF):



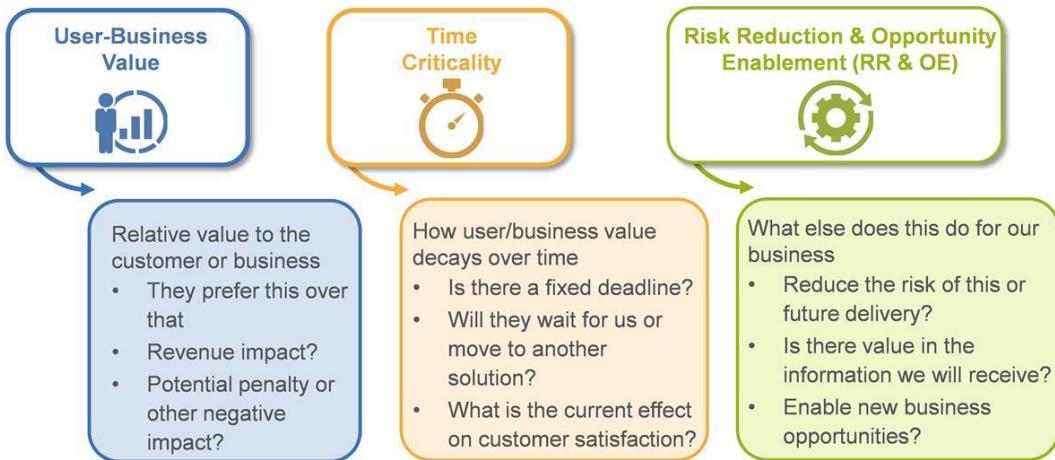
Adapted from *The Principles of Product Development Flow*, Donald G. Reinertsen

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Notes:

Components of cost of delay



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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, and 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:



Activity: Weighted Shortest Job First (WSJF) prioritization



- ▶ **Step 1:** Prioritize three of the Features you identified earlier using WSJF
- ▶ **Step 2:** Share some insights from this activity with the class

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

Scale for each parameter: 1, 2, 3, 5, 8, 13, 20

Note: Do one column at a time, start by picking the smallest item and giving it a "1"

There must be at least one "1" in each column!

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Notes:

Digital Weighted Shortest Job First Calculator

$$WSJF = \frac{\text{User-business value} + \text{Time criticality} + \text{Risk reduction and/or opportunity enablement}}{\text{Job size}}$$

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

Do one column at a time. Click in the Feature cell to enter the Feature title. 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. The form will automatically calculate after you enter the Job size.

4.3 Participate in PI Planning

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Notes:

Program Increment Planning

Program Increment (PI) Planning is a cadence-based, face-to-face event that serves as the heartbeat of the Agile Release Train (ART), aligning all the teams on the ART to a shared mission and Vision.

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



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Notes:

4.3 Participate in PI Planning

Video: The Power of PI Planning

Duration
2 min

The video thumbnail features the text "SAFe® at Transport" in large white letters, with "The Power of PI Planning" below it. The background is a blue-tinted image of a person writing on a whiteboard. The Scaled Agile logo is at the bottom left.

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Provider of SAFe®

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Notes:



The Power of PI Planning video link: <https://youtu.be/EF0yGq9XCrA>
Remote PI Planning video link: <https://vimeo.com/356905542/2dca13969f>

4.3 Participate in PI Planning

The benefits of PI Planning

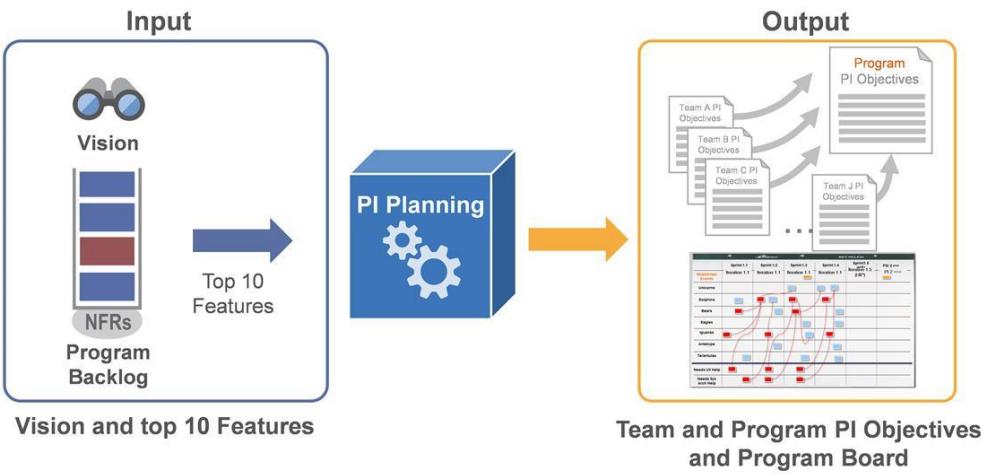
- ▶ Establishing face-to-face communication across all team members and stakeholders
- ▶ Aligning development to business goals with the business context, Vision, and Team/Program PI Objectives
- ▶ Identifying dependencies and fostering cross-team and cross-ART collaboration
- ▶ Providing the opportunity for ‘just the right amount’ of architecture and Lean User Experience (UX) guidance
- ▶ Matching demand to capacity, eliminating excess work in process (WIP)
- ▶ Fast decision making

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Notes:

The PI Planning process



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Notes:

Align to a mission with PI Objectives

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

Objectives for PI 1		Business Value	Actual Value
Structured location and validation of locations			
<ul style="list-style-type: none"> ● Navigate autonomously from distribution center to top 5 most frequent destinations ● Park at 1 building that requires parallel parking ● Reduce GPS signal loss by 25% ● Build and demonstrate proof of concept for next generation vehicle navigation systems 			
Uncommitted Objectives			
<ul style="list-style-type: none"> ● Spike: conduct hijack testing of the vehicle sensors 			

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Notes:

Maintain predictability with uncommitted objectives

Uncommitted objectives help improve the predictability of delivering business value.

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

Objectives for PI 1	
Uncommitted Objectives	
Spike: Conduct hijack testing of the vehicle sensors	
Enabler: Improve LMS integration with Salesforce	

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Notes:

Prepare to experience a simulated PI Planning event

The flow of the simulation



You will be presented with the program Vision

You will be involved in planning two Iterations considering Stories and Features

You will be drafting PI Objectives based on the program Vision and Features

You will be collaborating with the Business Owners to assign business value to the PI Objectives

Notes:

Outcomes of the PI Planning simulation

Actively participating in a simulated PI Planning event will enable you to:



Experience the business benefits of establishing communication across all team members and stakeholders



Experience estimating capacity for the iteration



Experience drafting PI Objectives for achieving the Program Increment and committing to the plan



Experience managing program risks

Notes:



Activity: Identify program roles

Duration
3 min

- ▶ **Step 1:** Identify program roles for the simulation
- ▶ **Step 2:** Ensure that you have all key roles required for the PI Planning simulation

Simulation role	Assigned to
Executive	Volunteer
Product Manager	Volunteer
System Architect, UX and Development Manager	Volunteer

Example: Your Instructor will be the RTE. A volunteer will be the Product Manager, etc.

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Notes:



Simulation: Why are we here?



Alignment to a common mission

We are here to gain alignment and commitment around a clear set of prioritized objectives. I will now review the agenda for the next two days of the PI Planning Event.

PI Planning Agenda

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Notes:

4.3 Participate in PI Planning

Simulation: Day 1 agenda



PI Planning Agenda DAY 1

Presented by RTE

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

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Notes:

Simulation: Day 2 agenda



PI Planning Agenda DAY 2

Presented by RTE

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

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Notes:

4.3 Participate in PI Planning



Simulation: Briefings

Executive



Product Manager



System Architect



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Notes:



Simulation: Planning guidance



Expect this first PI Planning to feel a bit chaotic. Future PI Planning meetings will become more routine.



Product Owners: You have the content authority to make decisions at the user Story level



Scrum Masters: Your responsibility is to manage the timebox, the dependencies, and the ambiguities



Agile Team: Your responsibility is to define user Stories, plan them into the Iteration, and work out interdependencies with other teams

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Notes:

4.3 Participate in PI Planning

Simulation: Planning requirements

Presented by RTE

Focus on the highlighted area for this simulation.

G User story P Maintenance Y Exploration enabler O Infrastructure enablers R Risks and dependencies

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Notes:

Simulation: Using historical data to calculate velocity

Velocity

240 miles → 60 miles/hour → 4 hours

180 Story points → 30 SP/Iteration → 6 Iterations

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

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Notes:



Simulation: Calculate your capacity

Calculating Iteration capacity

- ▶ For every full-time Agile Team member contributing to Solution development, 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. Call it a 1.
- ▶ Estimate every other Story relative to that one.

Example:

A 7-person team composed of 3 developers, 2 testers, 1 Product Owner, and 1 Scrum Master

Exclude The Scrum Master, Product Owner, and vacation time from the calculation

Calculated capacity:
 $5 \times 8 \text{ points} = 40 \text{ points per Iteration}$

Notes:



Activity: Calculate your capacity



- ▶ **Step 1:** Review the example on the previous slide
- ▶ **Step 2:** Calculate your own capacity for the next two, 2-week Iterations
 - The first Iteration starts Monday
 - Use your real availability
- ▶ **Step 3:** Make sure you have your team's capacity calculated

Notes:

4.3 Participate in PI Planning



Activity: Team breakout #1

Duration
45 min

You will be planning a short Program Increment with two Iterations.

- ▶ **Step 1:** Setup the team area. Enter the capacity for each Iteration.
- ▶ **Step 2:** Pick up a Feature from the Product Manager.
- ▶ **Step 3:** Estimate the Stories using Story Points.
- ▶ **Step 4:** Load the Stories into the Iterations.
- ▶ **Step 5:** Write the PI Objectives using clear statements.
- ▶ **Step 6:** Identify the uncommitted objectives.
- ▶ **Step 7:** Identify any program risks and dependencies.



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Notes:



Activity: Scrum of scrums (SoS) sync

Duration
5 min

- ▶ **Step 1:** Observe the SoS sync, conducted by the RTE
- ▶ **Step 2:** Each team's Scrum Master provides the team's current status and addresses the questions from the RTE
- ▶ **Step 3:** The RTE holds a meet-after after the sync (limited to 1 – 2 topics for the simulation)

SoS Sync Questions	Team 1	Team 2
Have you identified the capacity for each Iteration in the PI?		
Have you identified most of the Stories for the first two Iterations and begun estimating?		
Have you begun resolving dependencies with other teams?		
Are you discussing trade-offs and conflicting priorities with your Business Owners?		
Have you identified any program risks?		
Will you be ready to start writing PI Objectives in the next 15 minutes?		
Is there anything you need to discuss with other Scrum Masters? If so, stay for the meet-after		

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Notes:

4.3 Participate in PI Planning

SoS Sync Questions	Team 1	Team 2
Have you identified the capacity for each Iteration in the PI?		
Have you identified most of the Stories for the first two Iterations and begun estimating?		
Have you begun resolving dependencies with other teams?		
Are you discussing trade-offs and conflicting priorities with your Business Owners?		
Have you identified any program risks?		
Will you be ready to start writing PI Objectives in the next 15 minutes?		
Is there anything you need to discuss with other Scrum Masters? If so, stay for the meet-after		



Activity: Draft plan review



- ▶ **Step 1:** Present the summary of your team's first two Iterations and one or more draft PI Objectives
- ▶ **Step 2:** Make sure that you have included the following:
 - Capacity and load for each Iteration
 - Draft PI Objectives
 - Program risks and impediments

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Notes:

4.3 Participate in PI Planning

Management review and problem-solving

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

Common questions during the managers' review:

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



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Notes:

Activities during day 2

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	

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	

Notes:

4.3 Participate in PI Planning

Make planning adjustments

- ▶ Based on the previous day's management review and problem-solving meeting, adjustments are discussed.
- ▶ Possible changes:
 - Business priorities
 - Adjustment to Vision
 - Changes to scope
 - Realignment of work and teams



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Notes:

Team breakout #2

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

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

Team A		BV
PI Objectives		
■ 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	

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Notes:

4.3 Participate in PI Planning

 Activity: Setting business value

Duration
10 min

The instructor will demonstrate assigning business value for one team's objectives.

- ▶ **Step 1:** Bring the Business Owners to one team's draft plans
- ▶ **Step 2:** The Business Owners will set value on a scale of 1 – 10 for each identified objective
- ▶ **Step 3:** Observe the discussion that would take place, illustrating the larger purposes and thought processes around assigning business value

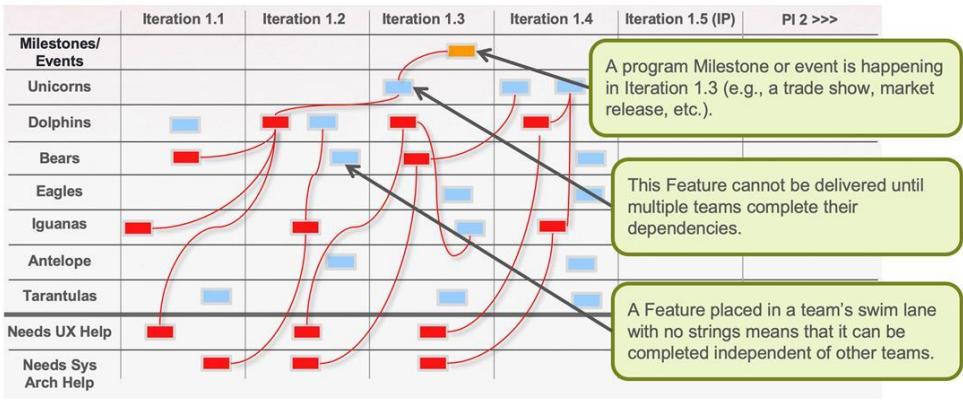
Team A	PI Objectives	BV
	Proof of concept with mock sounds	10
	Help with radar POC	4
	Decide to create or buy engine noises	3
Uncommitted		
	Proof of concept with real sounds	7

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Notes:

Program Board - Feature delivery, dependencies, and Milestones



A program board diagram illustrating feature delivery, dependencies, and milestones across six iterations (Iteration 1.1 to PI 2). The board is organized by team (swim lanes) and iteration. Features are represented by blue boxes, significant dependencies by red boxes, and milestones/events by orange boxes. Red strings indicate dependencies between stories. Annotations provide explanations for specific elements:

- A program Milestone or event is happening in Iteration 1.3 (e.g., a trade show, market release, etc.).
- This Feature cannot be delivered until multiple teams complete their dependencies.
- A Feature placed in a team's swim lane with no strings means that it can be completed independent of other teams.

Legend:

- Blue box = Features
- Red box = Significant Dependency
- Orange box = Milestone/Event
- Red String = A dependency requiring Stories or other dependencies to be completed before the Feature can be completed

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Notes:

4.3 Participate in PI Planning

Final plan review

Teams and Business Owners peer-review all final plans.



Final plan review

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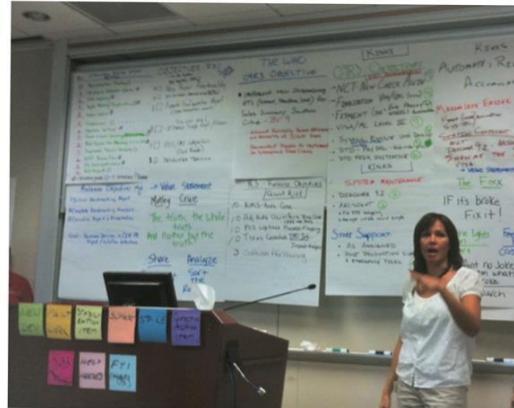
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Notes:

Building the final plan

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



A team's final plan

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Notes:

4.3 Participate in PI Planning

Addressing program risks

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

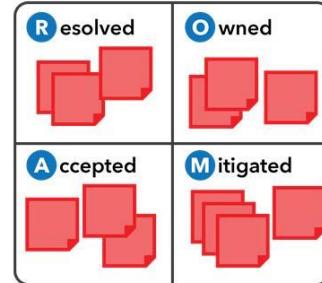
ROAMing risks:

Resolved - Has been addressed. No longer a concern.

Owned - Someone has taken responsibility.

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

Mitigated - Team has plan to adjust as necessary.



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Notes:

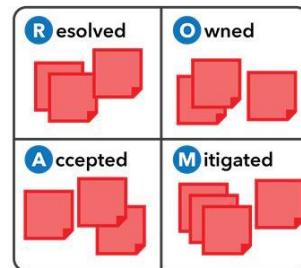


Activity: Manage program risks

Duration
10 min

The instructor will demonstrate **ROAMing** one to two risks for one team.

- ▶ **Step 1:** Pick one to two risk examples.
- ▶ **Step 2:** Read them in front of all teams and stakeholders.
- ▶ **Step 3:** Ask if anyone can own, help mitigate, or resolve the risks. Otherwise, accept as is.
- ▶ **Step 4:** Put each risk into a corresponding quadrant of the ROAM sheet for the program.



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Notes:

4.3 Participate in PI Planning

Confidence vote: Team and program

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

A commitment with two parts:

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



No confidence



Little confidence



Good confidence



High confidence



Very high confidence



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Notes:

Run a planning meeting retrospective

The PI planning event will evolve over time. Ending with a retrospective will help continuously improve it.



A Team's Retrospective

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Notes:

4.4 Develop on Cadence; Release on Demand

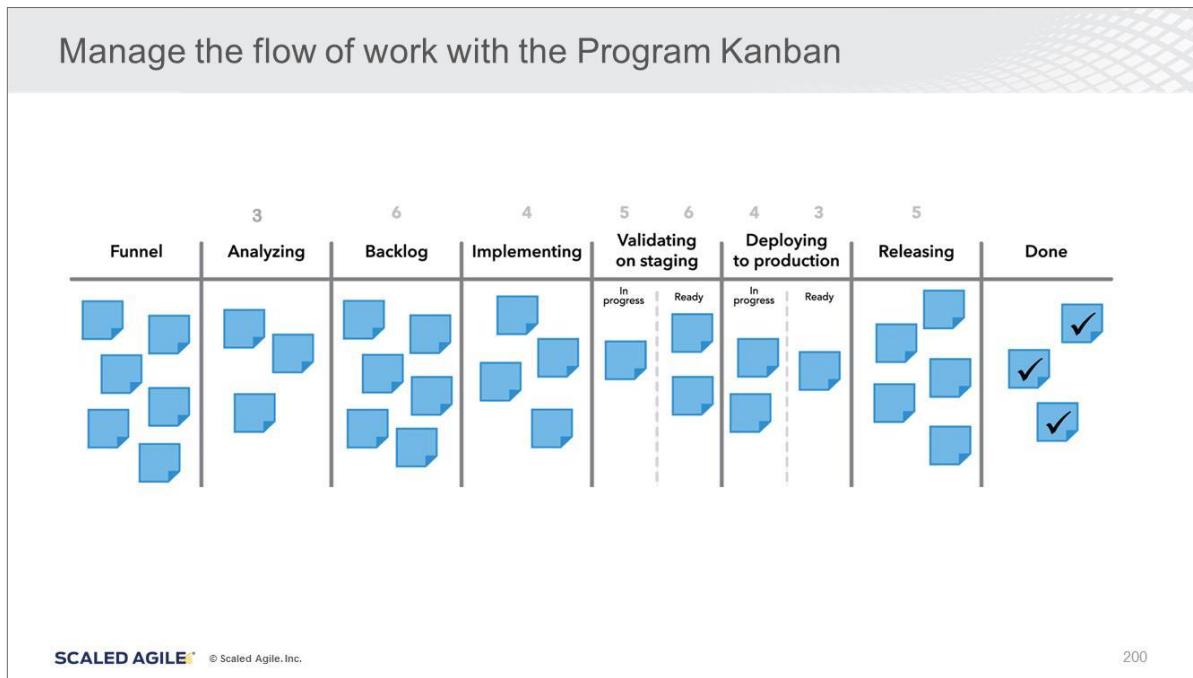


4.4 Develop on Cadence; Release on Demand

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Notes:

An example of a Program Kanban



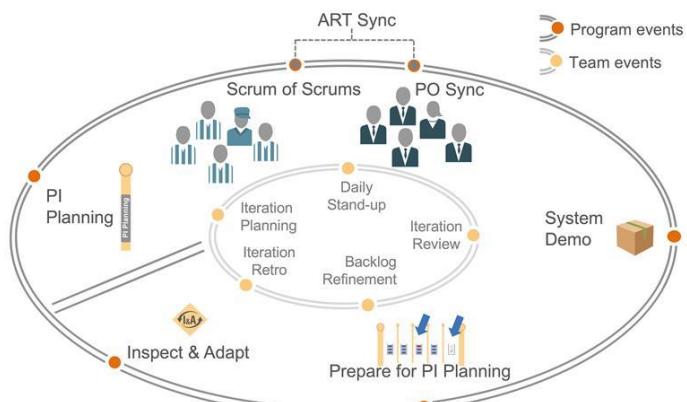
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Notes:

Program events drive the train

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



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Notes:

ART sync is used to coordinate progress

Programs coordinate dependencies through sync meetings.



Scrum of scrums

- ▶ Visibility into progress and impediments
- ▶ Facilitated by RTE
- ▶ Participants: Scrum Masters, other select team members, SMEs if necessary
- ▶ Weekly or more frequently, 30–60 minutes
- ▶ Timeboxed and followed by a 'Meet After'

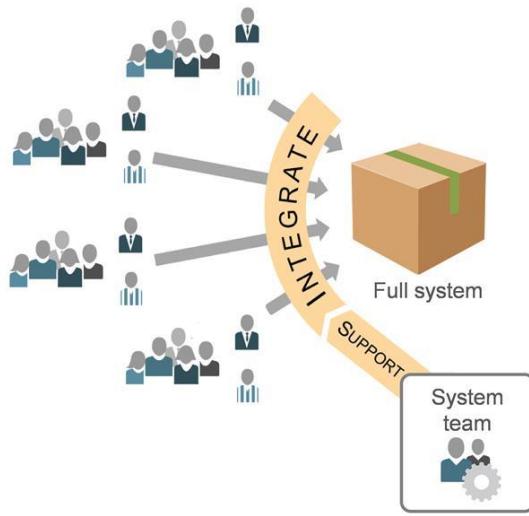
PO Sync

- ▶ Visibility into progress, scope, and priority adjustments
- ▶ Facilitated by RTE or PM
- ▶ Participants: PMs, POs, other stakeholders, and SMEs as necessary
- ▶ Weekly or more frequently, 30–60 minutes
- ▶ Timeboxed and followed by a 'Meet After'

Notes:

Demo the full system increment every two weeks

- ▶ Features are functionally complete or 'toggled' so as not to disrupt demonstrable functionality
- ▶ New Features work together and with existing functionality
- ▶ Happens after the Iteration review (may lag by as much as one Iteration, maximum)
- ▶ Demo from a staging environment which resembles production as much as possible



Notes:

Innovation and Planning (IP) Iteration

Provide sufficient capacity margin to enable cadence. —Donald G. Reinertsen

Facilitate reliability, Program Increment readiness, planning, and innovation

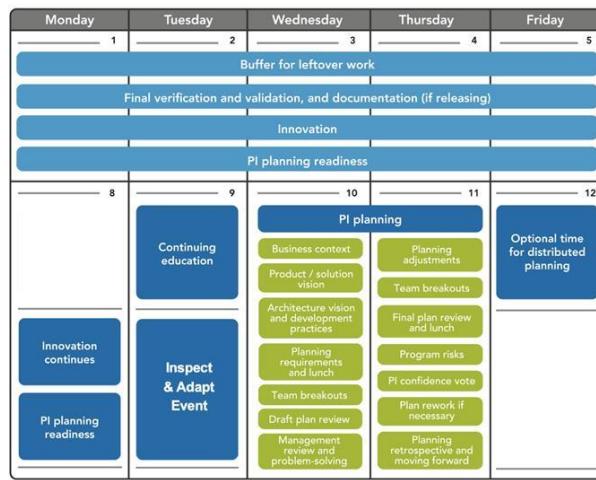
- ▶ **Innovation:** Opportunity for innovation, hackathons, and infrastructure improvements
- ▶ **Planning:** Provides for cadence-based planning
- ▶ **Estimating guard band** for cadence-based delivery

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Notes:

Example IP Iteration calendar



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Notes:

4.4 Develop on Cadence; Release on Demand

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
	Continuing education			
Innovation continues		PI planning		Optional time for distributed planning
PI planning readiness	Inspect & Adapt Event	Business context Product / solution vision Architecture vision and development practices Planning requirements and lunch Team breakouts Draft plan review Management review and problem-solving	Planning adjustments Team breakouts Final plan review and lunch Program risks PI confidence vote Plan rework if necessary Planning retrospective and moving forward	

Without the IP Iteration...

- ▶ Lack of delivery capacity buffer impacts predictability
- ▶ Little innovation; tyranny of the urgent
- ▶ Technical debt grows uncontrollably
- ▶ People burn out
- ▶ No time for teams to plan, demo, or improve together



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Notes:

Improving results with the Inspect and Adapt event

Three parts of Inspect and Adapt:

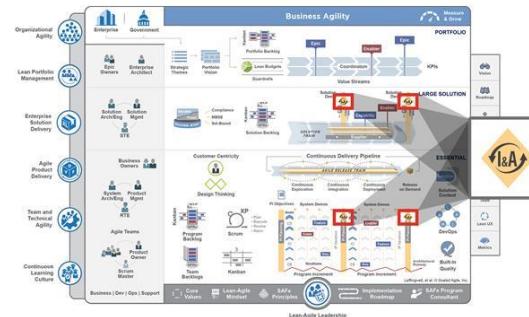
1. The PI System Demo

2. Quantitative and Qualitative Measurement

3. Problem-Solving Workshop

Timebox: 3 – 4 hours per PI

Attendees: Teams and stakeholders



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Notes:

PI System Demo

At the end of the PI, teams demonstrate the current state of the Solution to the appropriate stakeholders.

- ▶ Often led by Product Management, POs, and the System Team
- ▶ Attended by Business Owners, program stakeholders, Product Management, RTE, Scrum Masters, and teams



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Notes:

Program performance reporting

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

- ▶ 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 predictability measure.

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

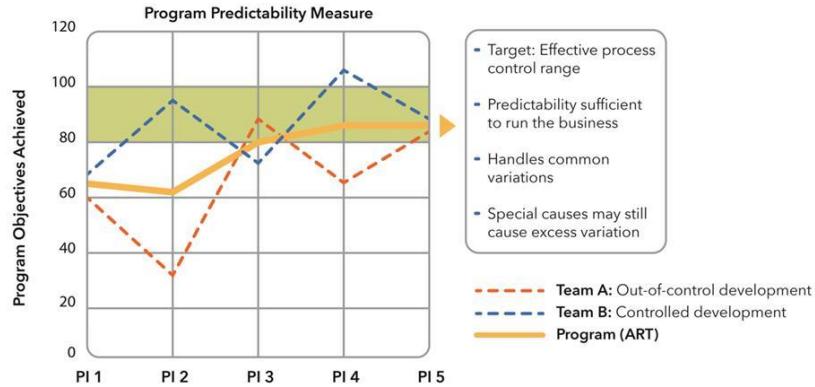
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Notes:

Quantitative and qualitative measurement

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



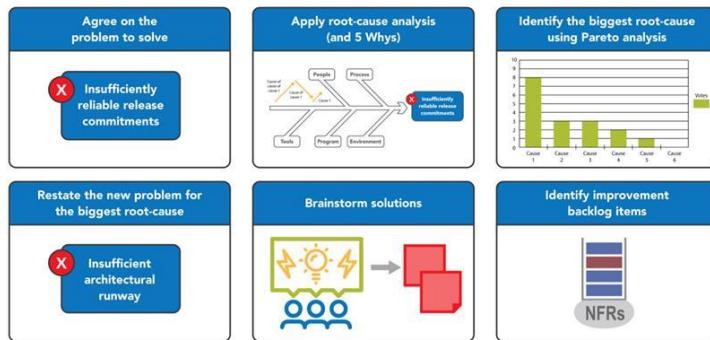
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Notes:

The problem-solving workshop

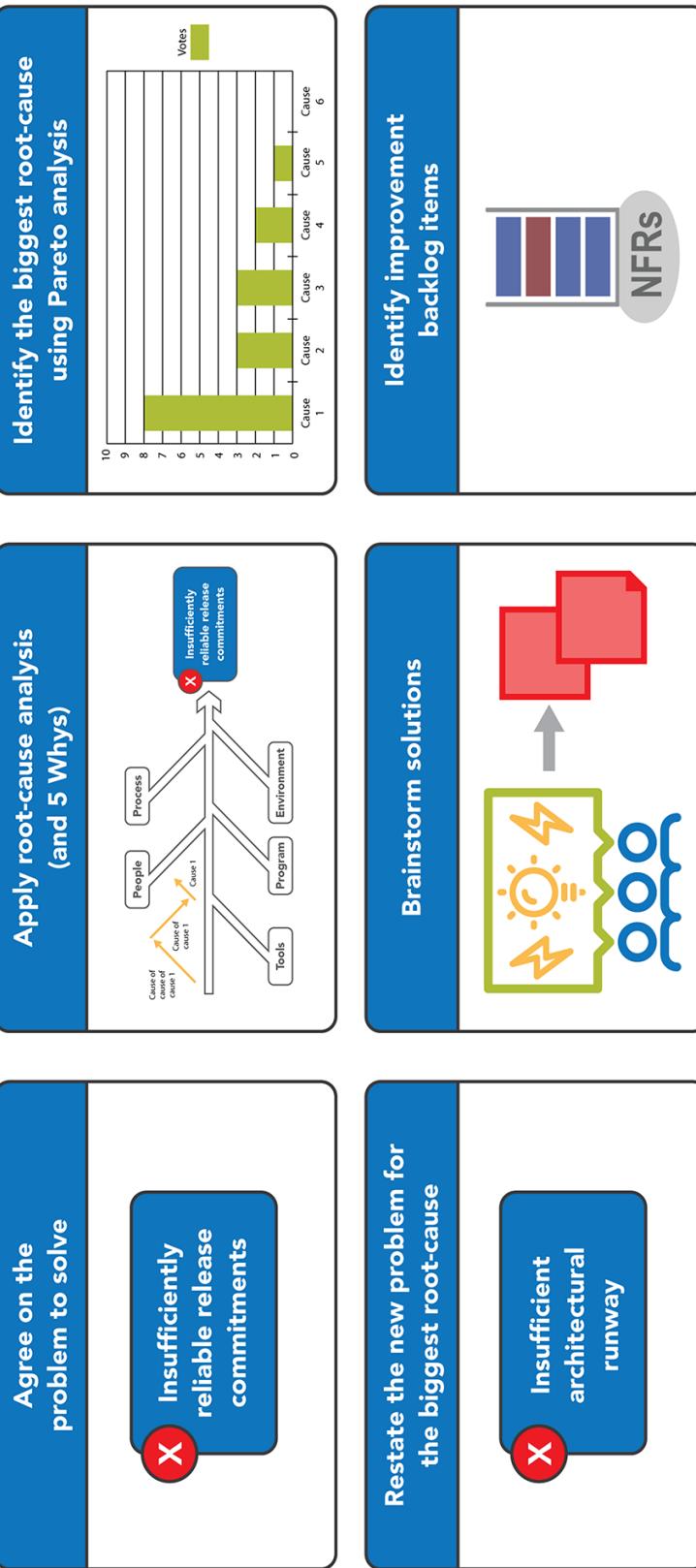
Teams conduct a short retrospective to systematically address the larger impediments that are limiting velocity.



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Notes:



4.5 Build a Continuous Delivery Pipeline with DevOps

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Notes:



Activity: DevOps myth or fact



- ▶ **Step 1:** Take the myth or fact quiz in your workbook
- ▶ **Step 2:** Check your results with the answer key at the bottom of page that follows the quiz



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Notes:

DevOps Myth or Fact Quiz

Instructions: Take this myth or fact quiz individually. Check your results with the answer key at the bottom of the page that follows the quiz.

	Myth	Fact
1. DevOps is just about automation	<input type="radio"/>	<input type="radio"/>
2. DevOps is a cultural change	<input type="radio"/>	<input type="radio"/>
3. You don't need Lean-Agile to have a successful DevOps implementation	<input type="radio"/>	<input type="radio"/>
4. Agile is for development not operations	<input type="radio"/>	<input type="radio"/>
5. The deployment pipeline is used to deploy environments as well as solutions	<input type="radio"/>	<input type="radio"/>
6. DevOps tries to bridge the gap between new Features and stable solutions	<input type="radio"/>	<input type="radio"/>
7. Measurements are an important part of DevOps	<input type="radio"/>	<input type="radio"/>
8. Automation of testing reduces the holding cost	<input type="radio"/>	<input type="radio"/>
9. DevOps is only for small software companies	<input type="radio"/>	<input type="radio"/>
10. Chaos monkey was developed by Netflix	<input type="radio"/>	<input type="radio"/>

Notes

Video: What is DevOps?

Duration
2 min

The video thumbnail features a portrait of Morgan Campbell, a man with a beard and short hair, wearing a dark blue button-down shirt. To his right, the title 'What is DevOps?' is displayed in large, bold, white font. Below it, a play button icon contains the text 'with Morgan Campbell'. At the bottom right of the thumbnail, the Scaled Agile logo is visible, with the text 'Provider of SAFe' underneath.

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Notes:



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



Quiz Answers: 1-MYTH | 2-FACT | 3-MYTH | 4-MYTH | 5-FACT | 6-FACT | 7-FACT | 8-MYTH | 9-MYTH | 10-FACT

4.5 Build a Continuous Delivery Pipeline with DevOps

Who is DevOps?

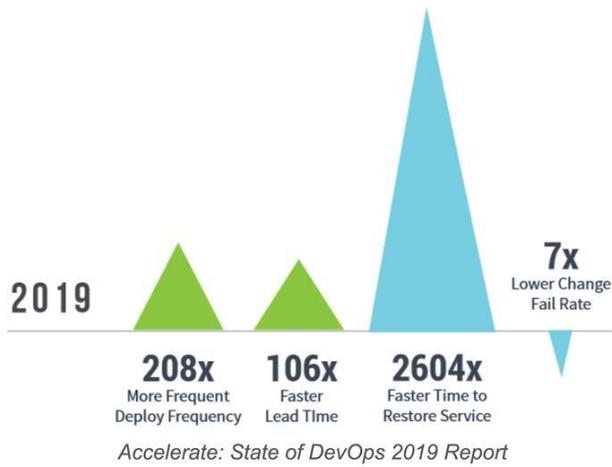


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Notes:

Achieve higher performance with DevOps



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Notes:

A CALMR approach to DevOps

- ▶ **C**ulture - Establish a culture of shared responsibility for development, deployment, and operations.
- ▶ **A**utomation - Automate the Continuous Delivery Pipeline.
- ▶ **L**ean flow - Keep batch sizes small, limit WIP, and provide extreme visibility.
- ▶ **M**easurement - Measure the flow through the pipeline. Implement full-stack telemetry.
- ▶ **R**ecovery - Architect and enable low-risk releases. Establish fast recovery, fast reversion, and fast fix-forward.



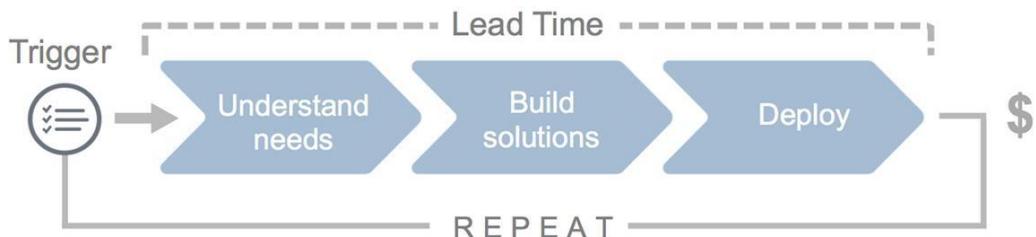
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Notes:

DevOps is in the Value Stream

Value occurs only when the end users are operating the Solution.



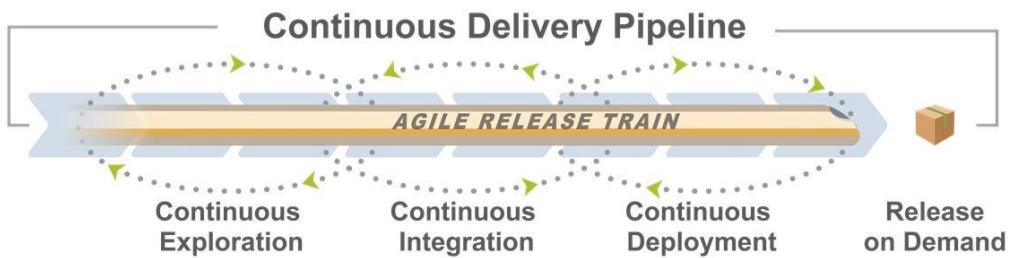
DevOps isn't optional. The only question is how efficient it is.

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Notes:

The Continuous Delivery Pipeline enables the flow of value

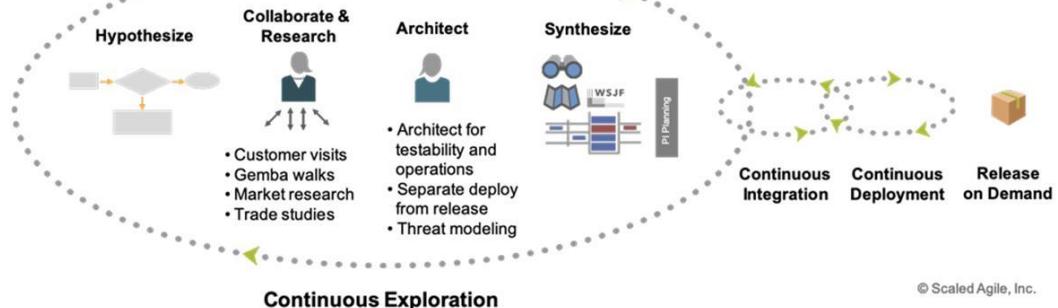


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Notes:

Continuous Exploration – Understand Customer needs



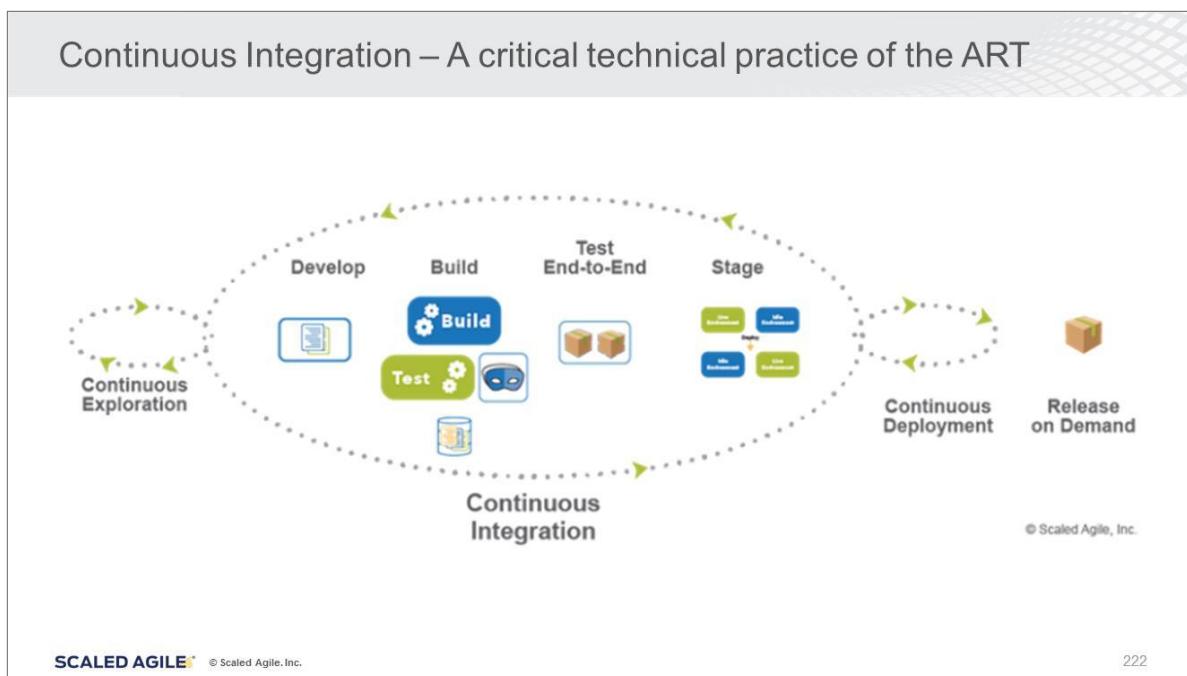
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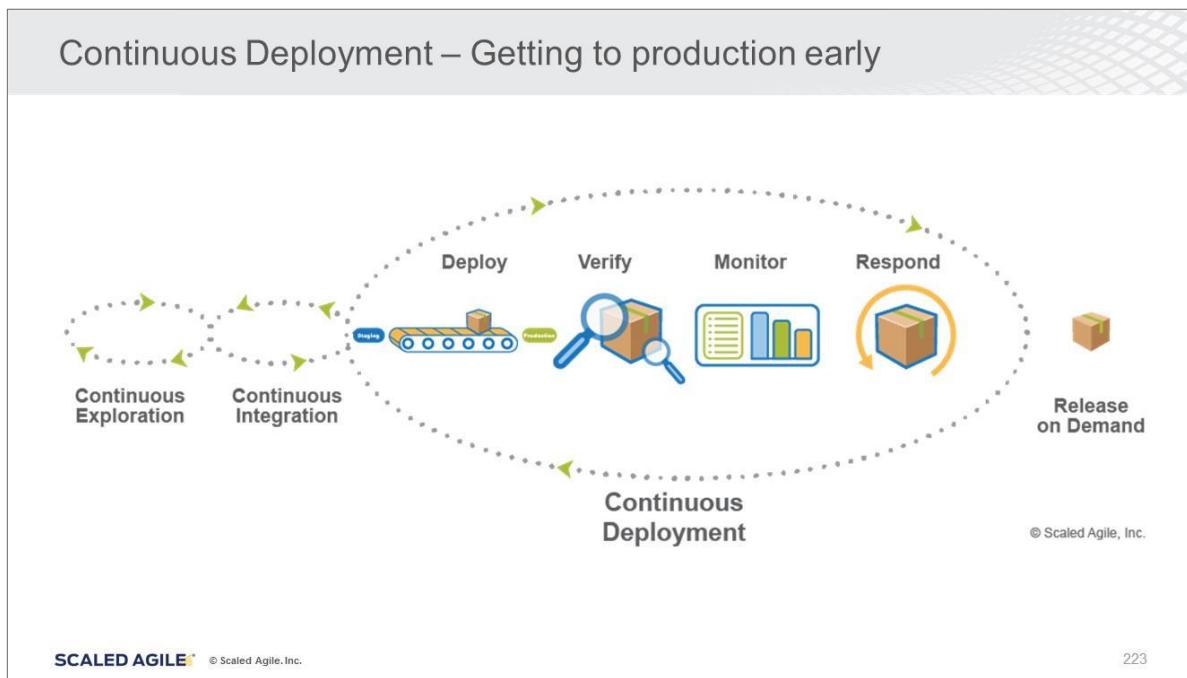
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Notes:

4.5 Build a Continuous Delivery Pipeline with DevOps



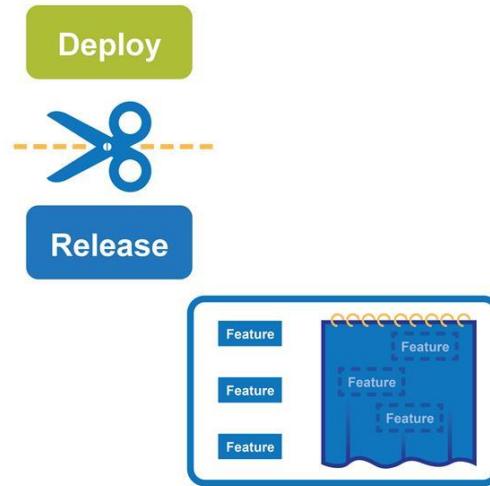
Notes:



Notes:

Separate deploy from release

- ▶ Separate deploy to production from release
- ▶ Hide all new functionality under feature toggles
- ▶ Enables testing background and foreground processes in the actual production environment before exposing new functionality to users



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Notes:

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



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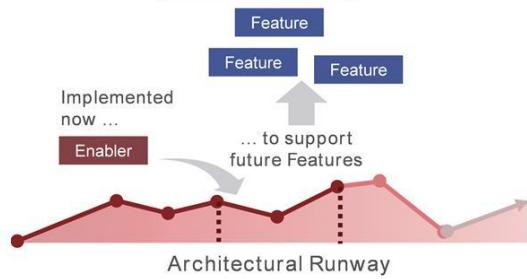
Notes:

Architect for releasability

Architectural Runway is existing code, hardware components, marketing branding guidelines, etc., that enable near-term business Features.

- ▶ Enablers build up the runway
- ▶ Features consume it
- ▶ Architectural Runway must be continuously maintained
- ▶ Use capacity allocation (a percentage of train's overall capacity in a PI) for Enablers that extend the runway

Example:
A single sign-on mechanism will enable sign-on in multiple applications.



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Notes:



Taking Action: Improving Agile Product Delivery



- ▶ **Step 1:** Consider the practices and the events that support Agile Product Delivery, as discussed earlier
- ▶ **Step 2:** Identify three minimum viable improvements you could execute to improve Agile Product Delivery. Write them down in your Action Plan
- ▶ **Step 3:** Share your insights with the class



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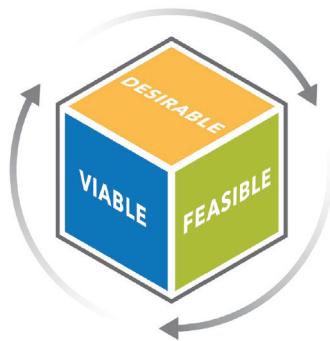
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Notes:



SAFe Agilist Action Plan

Improving Agile Product Delivery



Identify three minimum viable improvements you could execute to improve Agile Product Delivery.

Lesson review

In this lesson you:

- ▶ Applied Customer Centricity with Design Thinking
- ▶ Prioritized the Program Backlog
- ▶ Participated in PI Planning
- ▶ Explored how to develop on cadence and release on demand
- ▶ Discussed how to build a Continuous Delivery Pipeline with DevOps

Notes:

Scaled Agile Framework recommended reading for this lesson:



- [Agile Product Delivery](#)
- [Customer Centricity](#)
- [Design Thinking](#)
- [WSJF](#)
- [PI Planning](#)
- [DevOps](#)
- [Continuous Delivery Pipeline](#)

Lesson 4 notes



Enter your notes below:

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

Lesson 5

Exploring Lean Portfolio Management

Learning Objectives:

- 5.1 Define a SAFe portfolio
- 5.2 Connect the portfolio to Enterprise strategy
- 5.3 Maintain the Portfolio Vision
- 5.4 Establish portfolio flow
- 5.5 Fund Value Streams



SAFe® Course Attending this course gives students access to the SAFe® Agilist exam and related preparation materials.

5.1 Define a SAFe portfolio

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Notes:

The role of Lean Portfolio Management (LPM)

*Most strategy dialogues end up with executives talking at cross-purposes because ... nobody knows exactly what is meant by **vision** and **strategy**, and no two people ever quite agree on which topics belong where.*

That is why, when you ask members of an executive team to describe and explain the corporate strategy, you frequently get wildly different answers. We just don't have a good business discipline for converging on issues this abstract.

—Geoffrey Moore, Escape Velocity



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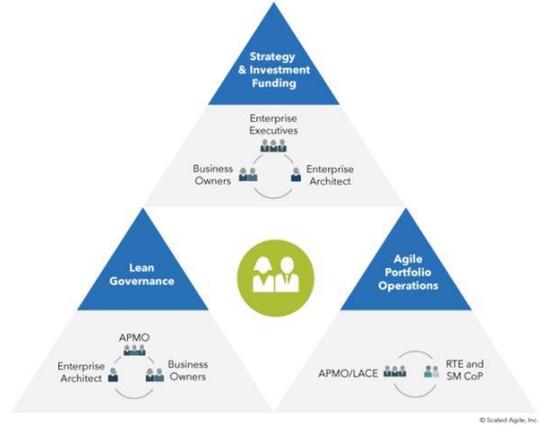
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Notes:

Lean Portfolio Management empowers the portfolio

The LPM function governs a SAFe portfolio, providing three essential collaborations to realize its responsibilities:

- ▶ *Strategy and investment funding*
- ▶ Agile portfolio operations
- ▶ Lean governance



Notes:

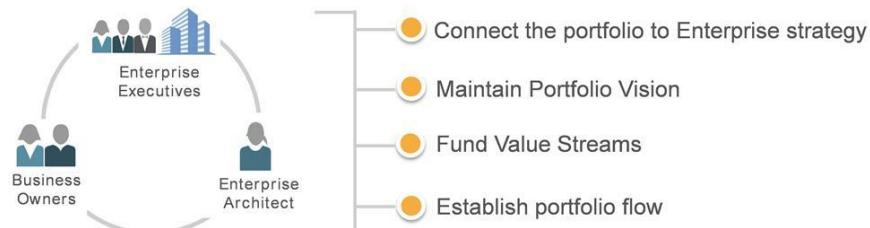
5.1 Define a SAFe portfolio



5.1 Define a SAFe portfolio

Strategy and investment funding is a collaboration

- ▶ Key stakeholders collaborate to develop and communicate the portfolio strategy
- ▶ They provide Lean Budgeting and funding to the Value Streams that develop and maintain the portfolio products and services
- ▶ They build a Portfolio Kanban system to establish flow



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Notes:

Large Enterprises will have multiple portfolios

In larger Enterprises, there can be multiple SAFe portfolios, typically one for each line of business, business unit, or division.



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Notes:

5.1 Define a SAFe portfolio

Define the portfolio with the Portfolio Canvas

- ▶ The Portfolio Canvas is a template for identifying a specific SAFe portfolio
- ▶ It defines the domain of the portfolio and other key elements

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Portfolio Name: Date:

Value Propositions						
Value Streams	Solutions	Customer Segments	Channels	Customer Relationships	Budget	KPIs / Revenue

Key Partners	Key Activities	Key Resources

Cost Structure	Revenue Streams

The Portfolio Canvas is adapted from The Business Model Canvas (<http://www.businessmodelgeneration.com>).
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Notes:

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Portfolio Name: Date:

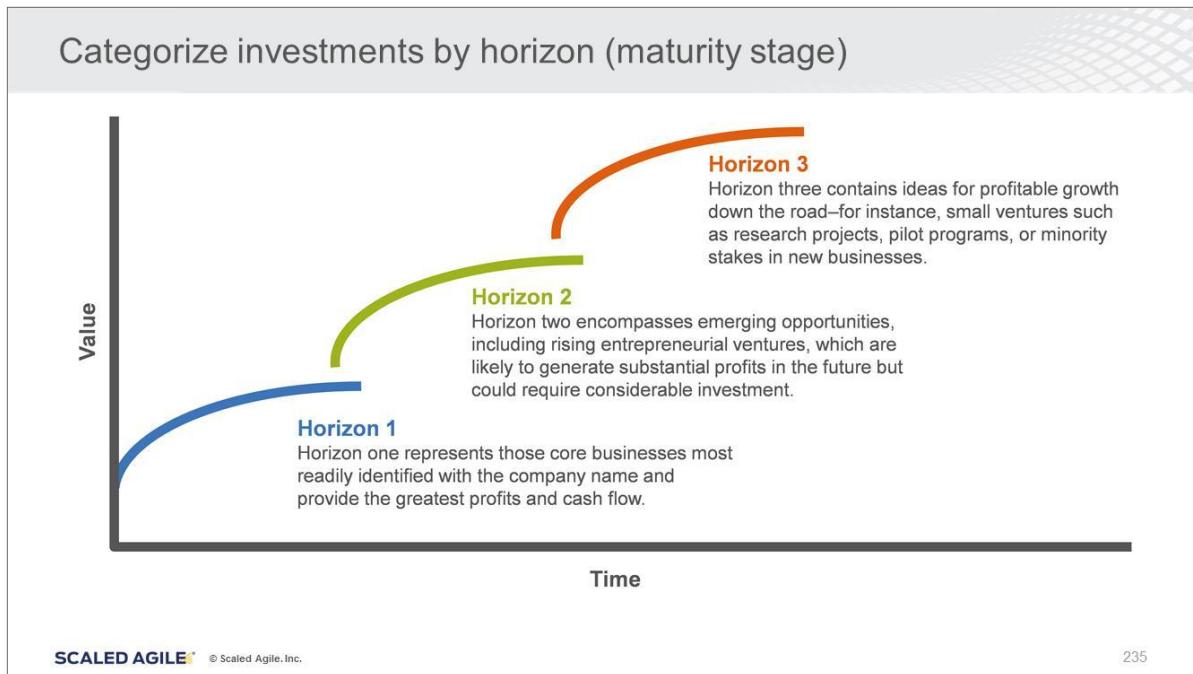
Value Propositions						
Value Streams	Solutions	Customer Segments	Channels	Customer Relationships	Budget	KPIs / Revenue

Key Partners	Key Activities	Key Resources

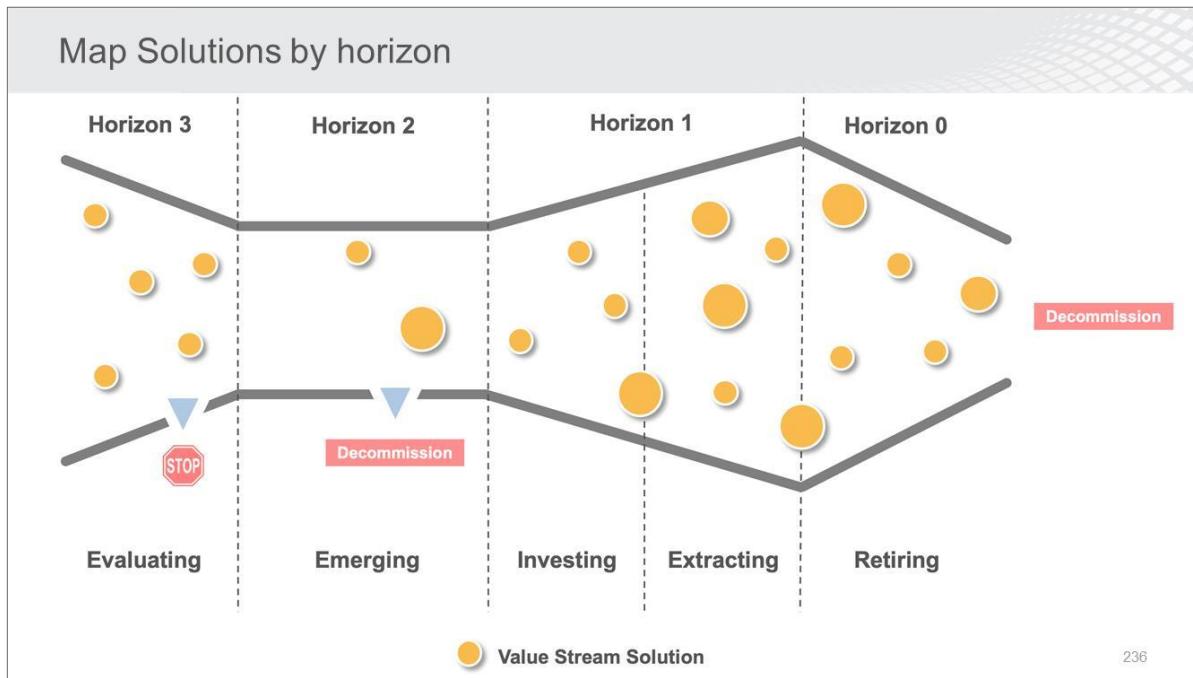
Cost Structure	Revenue Streams

The Portfolio Canvas is adapted from The Business Model Canvas (<http://www.businessmodelgeneration.com>).
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5.1 Define a SAFe portfolio



Notes:



Notes:

5.2 Connect the portfolio to Enterprise strategy

5.2 Connect the portfolio to Enterprise strategy

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Notes:

A model for Enterprise strategy formulation



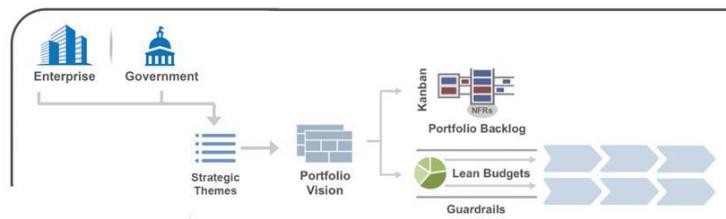
Adapted from Jim Collins, *Beyond Entrepreneurship*

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Notes:

Establish Strategic Themes

- ▶ Differentiation from the current state to the desired future state
- ▶ A collaboration between LPM and the larger Enterprise
- ▶ Enterprise business drivers drive Strategic Themes
- ▶ Portfolio context influences Strategic Themes

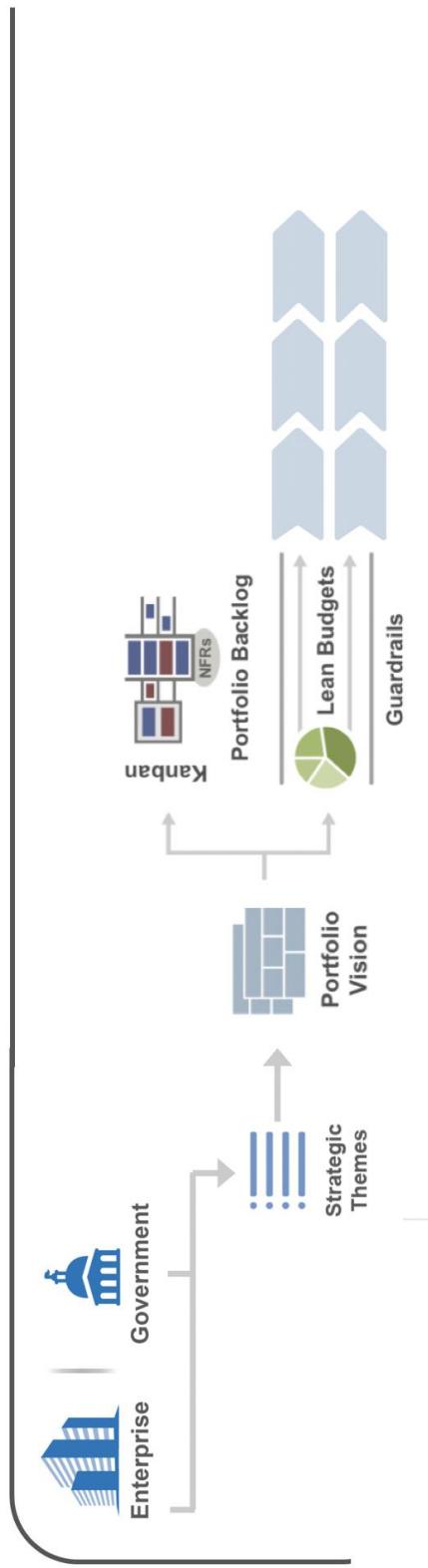


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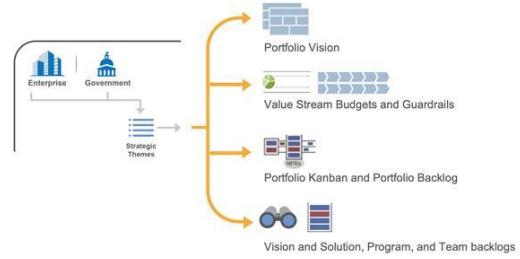
Notes:

5.2 Connect the portfolio to Enterprise strategy

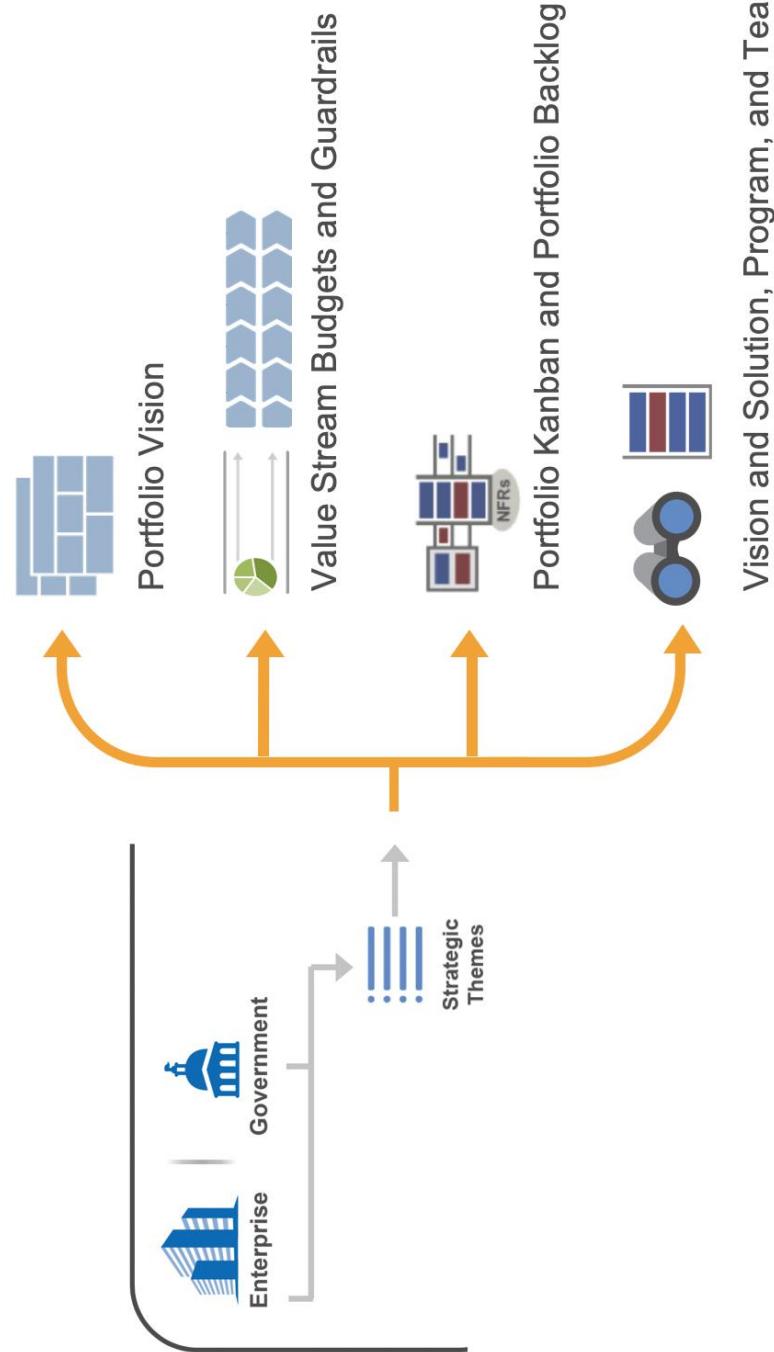


Strategic Themes influence what gets built

- ▶ Strategic Themes are differentiating, specific, and itemized business objectives that connect a portfolio to the strategy of the Enterprise.
 - Provide context for decision-making, inputs to the Vision, budget, and backlogs
 - Adjust ART and Value Stream funding to track changing strategic priorities
 - Assist with Epic evaluation and decision-making
 - Influence each Program Vision and Roadmap



Notes:





Activity: Identify Strategic Themes

Prepare
5 min

Share
2 min

► **Step 1:** Identify three Strategic Themes that help define the strategy of your portfolio in the upcoming year

► **Step 2:** Discuss:

- Are these *differentiators* for your business, as opposed to 'business-as-usual' items?

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



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Notes:

Identifying Strategic Themes

Instructions:

Step 1: Identify three Strategic Themes that help define the strategy of your portfolio in the upcoming year.

Step 2: Discuss: Are these differentiators for your business, as opposed to 'business-as-usual' items?

Step 3: Be prepared to share with the class

Strategic Theme #1

Strategic Theme #2

Strategic Theme #3

5.3 Maintain the Portfolio Vision

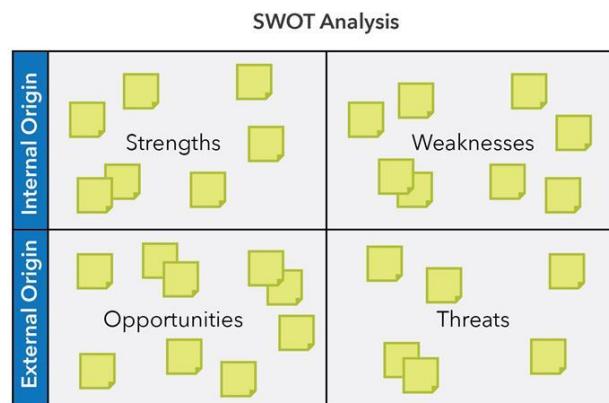
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Notes:

Identify opportunities for the portfolio's future state with SWOT

- ▶ Establishes an understanding of your organization's strengths and weaknesses
- ▶ Identifies the most significant opportunities and potential threats



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Notes:

Identify options with 'TOWS'

- ▶ SWOT and TOWS are both concerned with strengths, weaknesses, opportunities, and threats—the key difference is that TOWS focuses on action
- ▶ TOWS is used to identifying strategic options, Epics and other to create a better future state

TOWS Strategic Options Matrix

External Opportunities (O)	External Threats (T)	
1. 2. 3. 4.	1. 2. 3. 4.	
Internal Strength (S)	SO	ST
1. 2. 3. 4.	How can your strengths be used to exploit and maximize opportunities?	How can you apply your strengths to overcome present and potential threats?
Internal Weaknesses (W)	WO	WT
1. 2. 3. 4.	How can your opportunities be leveraged to overcome weaknesses?	How can you minimize weaknesses and avoid threats?

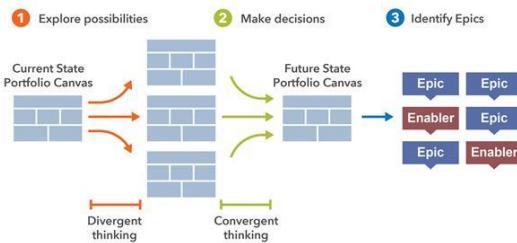
Notes:

TOWS Strategic Options Matrix

	External Opportunities (O)	External Threats (T)
	1. 2. 3. 4.	1. 2. 3. 4.
Internal Strength (S)	SO How can your strengths be used to exploit and maximize opportunities?	ST How can you apply your strengths to overcome present and potential threats?
Internal Weaknesses (W)	WO How can your opportunities be leveraged to overcome weaknesses?	WT How can you minimize weaknesses and avoid threats?

Envision the future state

- ▶ The portfolio canvas captured current state
- ▶ Use SWOT and TOWS to brainstorm potential future states
- ▶ Evaluate your options, and pick a future state
- ▶ Identify the Epics that will get you there



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Notes:

Express the future state as a Vision

A long view:

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



Vision: A postcard from the future



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

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

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

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Notes:

5.4 Establish portfolio flow

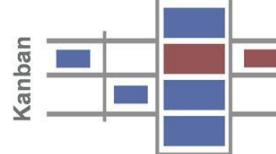
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Notes:

Govern Epic flow with the Portfolio Kanban

- ▶ Makes largest business initiatives visible
- ▶ Brings structure to analysis and decision-making
- ▶ Provides WIP limits to ensure the teams analyze responsibly
- ▶ Helps prevent unrealistic expectations
- ▶ Helps drive collaboration amongst the key stakeholders
- ▶ Provides a transparent and quantitative basis for economic decision-making

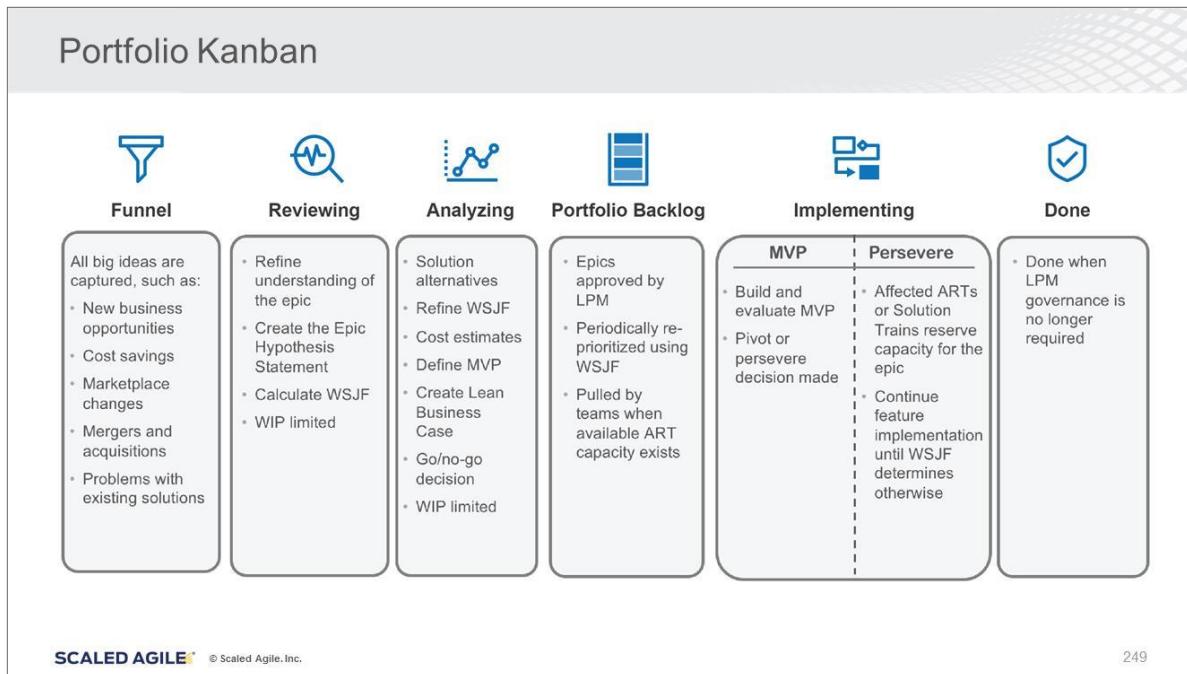


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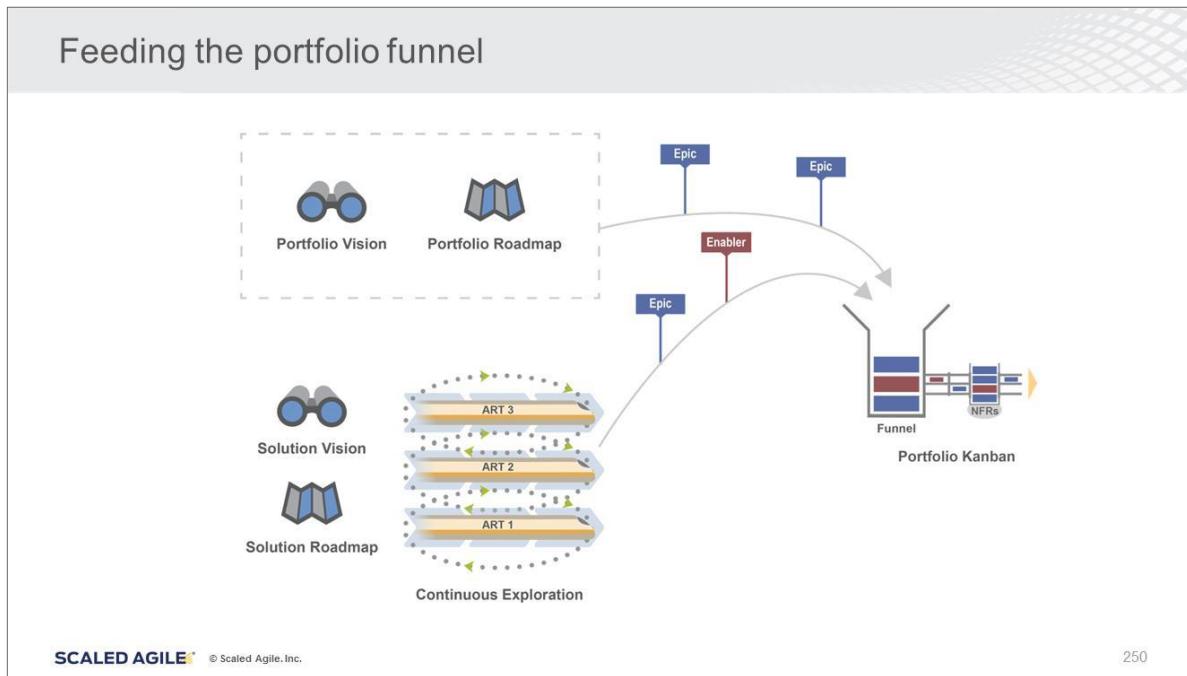
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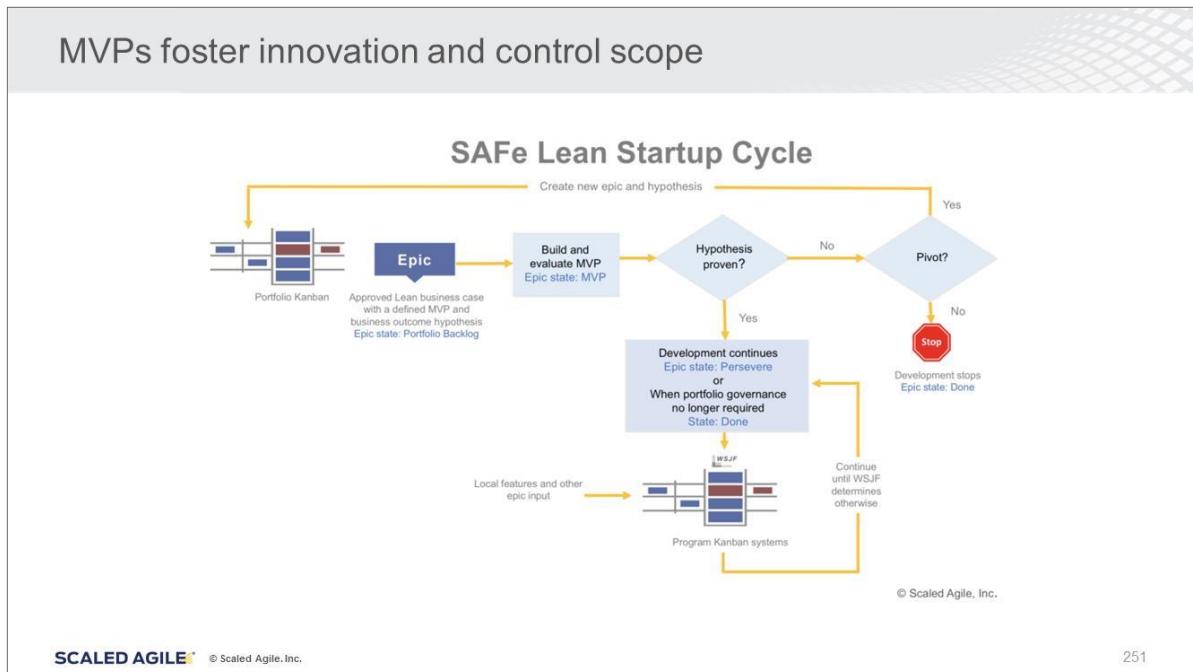
5.4 Establish portfolio flow



Notes:

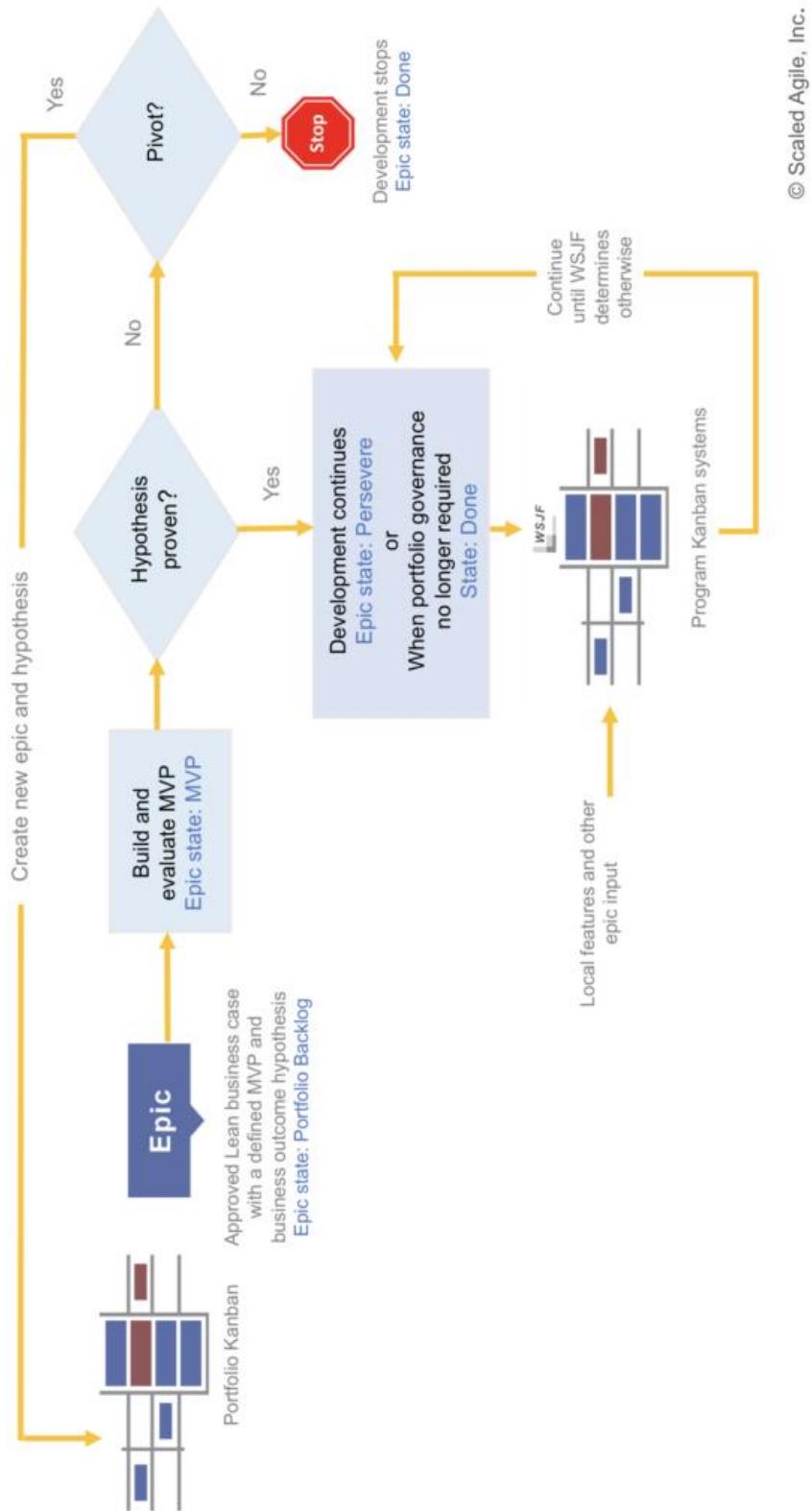


Notes:



Notes:

SAFe Lean Startup Cycle



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Epic hypothesis statement template

Epic Hypothesis Statement	
Funnel Entry Date:	<The date that the epic entered the funnel.>
Epic Name:	<A short name for the epic.>
Epic Owner:	<The name of the epic owner.>
Epic Description:	<An elevator pitch (value statement) that describes the epic in a clear and concise way.> For <customers> who <do something> the <solution> is a <something - the 'how'> that <provides this value> unlike <competitor, current solution or non-existing solution> our solution <does something better - the 'why'>
Business Outcomes:	<The measurable benefits that the business can anticipate if the epic hypothesis is proven to be correct.>
Leading Indicators:	<The early measures that will help predict the business outcome hypothesis. For more on this topic, see the Innovation Accounting advanced topic article.>
Nonfunctional Requirements (NFRs):	<Nonfunctional requirements (NFRs) associated with the epic.>

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Notes:



Activity: Epic writing

Prepare
10 min

Share
3 min

- ▶ **Step 1:** In your group, identify an Epic from one of your contexts
- ▶ **Step 2:** Write the Epic hypothesis statement
- ▶ **Step 3:** Discuss:
 - What could be an MVP to validate this Epic?

Epic Hypothesis Statement	
Funnel Entry Date:	<The date that the epic entered the funnel.>
Epic Name:	<A short name for the epic.>
Epic Owner:	<The name of the epic owner.>
Epic Description:	<An elevator pitch (value statement) that describes the epic in a clear and concise way.> For <customers> who <do something> the <solution> is a <something - the 'how'> that <provides this value> unlike <competitor, current solution or non-existing solution> our solution <does something better - the 'why'>
Business Outcomes:	<The measurable benefits that the business can anticipate if the epic hypothesis is proven to be correct.>
Leading Indicators:	<The early measures that will help predict the business outcome hypothesis. For more on this topic, see the Innovation Accounting advanced topic article.>
Nonfunctional Requirements (NFRs):	<Nonfunctional requirements (NFRs) associated with the epic.>

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Notes:

Create Epics

Read through the Epic examples and Epic Hypothesis Statement. Continue to the next page to draft your Epic Hypothesis Statement.

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

Epic Hypothesis Statement

Funnel Entry Date: <The date that the epic entered the funnel.>

Epic Name: <A short name for the epic.>

Epic Owner: <The name of the epic owner.>

Epic Description: <An elevator pitch (value statement) that describes the epic in a clear and concise way.>
For <customers>
who <do something>
the <solution>
is a <something - the 'how'>
that <provides this value>
unlike <competitor, current solution or non-existing solution>
our solution <does something better – the 'why'>

Business Outcomes: <The measurable benefits that the business can anticipate if the epic hypothesis is proven to be correct.>

Leading Indicators: <The early measures that will help predict the business outcome hypothesis. For more on this topic, see the Innovation Accounting advanced topic article.>

Nonfunctional Requirements (NFRs): <Nonfunctional requirements (NFRs) associated with the epic.>

Create Epics

Instructions: In your group, identify an epic from one of your contexts. Write the epic hypothesis statement. Discuss what could be an MVP to validate this Epic.

Epic Hypothesis Statement

Funnel Entry Date:

Epic Name:

Epic Owner:

Epic Description:

Business Outcomes:

Leading Indicators:

Nonfunctional Requirements (NFRs):

5.5 Fund Value Streams

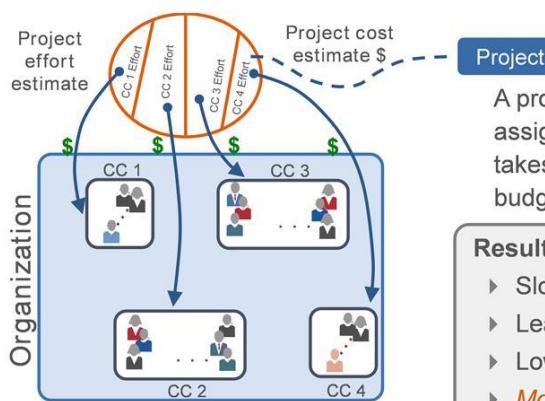
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Notes:

Problem: Cost-center budgeting

Traditional project-based, cost-center budgeting creates overhead and friction, lowers velocity.



A project requires collaboration of cost centers, assignment of people, budget, and schedule. It takes multiple budgets to build a single project budget.

Result:

- ▶ Slow, complex budgeting process
- ▶ Leads to utilization-based planning and execution
- ▶ Low program throughput
- ▶ *Moves the people to the work*

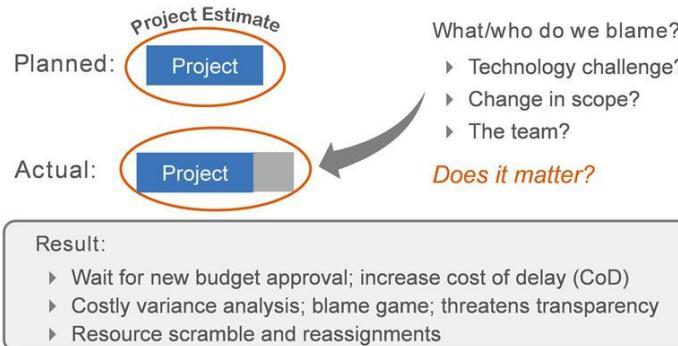
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Notes:

Problem: Projects increase cost of delay

When overruns happen, project accounting and re-budgeting increases cost of delay and impacts culture.



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Notes:

Solution: Fund Value Streams not projects

Funding Value Streams provides for full control of spend, with:

- ▶ No costly and delay-inducing project cost variance analyses
- ▶ No resource reassessments
- ▶ No blame game for project overruns



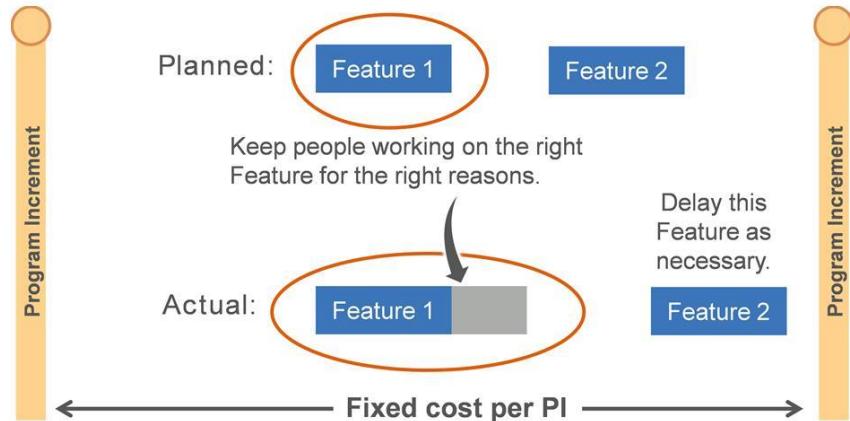
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Notes:

Control costs with increased flexibility

ART budgets and resources are unaffected by Feature cost overruns or changing priorities.



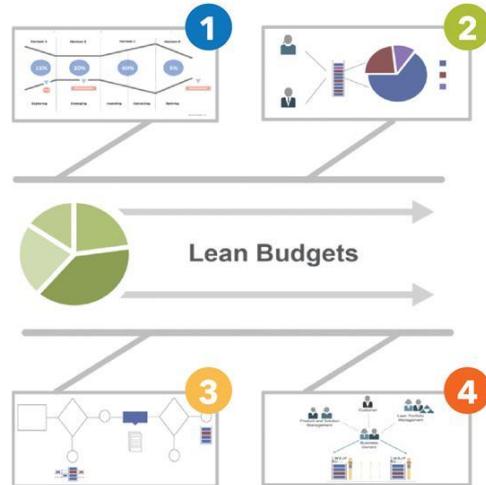
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Notes:

Maintain the Guardrails

- 1) Apply investment horizons
- 2) Utilize capacity allocation
- 3) Approve Epic initiatives
- 4) Continuous Business Owner engagement



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Notes:

Lesson review

In this lesson you:

- ▶ Defined a SAFe portfolio
- ▶ Connected the portfolio to Enterprise strategy
- ▶ Explored tools for maintaining the Portfolio Vision
- ▶ Discussed how to establish portfolio flow
- ▶ Discussed how to fund Value Streams

Notes:

Scaled Agile Framework recommended reading for this lesson:



- [Lean Portfolio Management](#)
- [Strategic Themes](#)
- [Portfolio Vision](#)
- [Lean Budgets](#)
- [Guardrails](#)
- [Portfolio Kanban](#)
- [Epics](#)

Lesson 5 notes



Enter your notes below:

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Lesson 6

Leading the Change

Learning Objectives:

- 6.1 Lead by example
- 6.2 Lead the change



SAFe® Course Attending this course gives students access to the SAFe® Agilist exam and related preparation materials.

6.1 Lead by example

6.1 Lead by example

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Notes:

Leading by example

Setting an example is not the main means of influencing others, it is the only means. — Albert Einstein

- ▶ **Authenticity** requires leaders to model desired professional and ethical behaviors.
- ▶ **Emotional intelligence** describes how leaders identify and manage their emotions and those of others through self-awareness, self-regulation, motivation, empathy, and social skills
- ▶ **Lifelong learning** depicts how leaders engage in ongoing, voluntary, and self-motivated pursuit of knowledge and growth, and they encourage and support the same in others
- ▶ **Growing others** encourages leaders to provide the personal, professional, and technical guidance and resources each employee needs to assume increasing levels of responsibility
- ▶ **Decentralized decision-making** moves the authority for decisions to where the information is



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Notes:

6.1 Lead by example

Leaders provide the organization with patterns of expected behaviors

Pathological Culture <i>Power-oriented</i>	Bureaucratic Culture <i>Rule-oriented</i>	Generative Culture <i>Performance-oriented</i>
Low cooperation	Modest cooperation	High cooperation
Messengers blamed	Messengers neglected	Messengers trained
Responsibilities shirked	Narrow responsibilities	Responsibilities shared
Collaboration discouraged	Collaboration tolerated	Collaboration encouraged
Failure leads to scapegoating	Failure leads to justice	Failure leads to improvement
Innovation crushed	Innovation leads to problems	Innovation implemented

Notes:

6.2 Lead the change

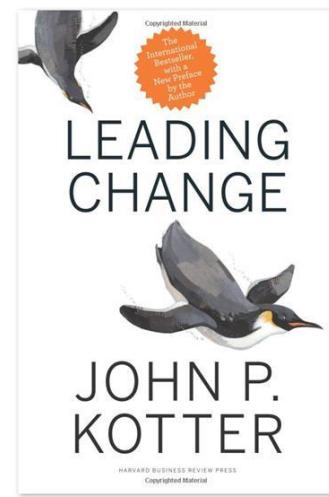
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Notes:

Keys to leading successful change

- ▶ Establish a sense of urgency
- ▶ Create a powerful guiding coalition
- ▶ Develop the vision and strategy
- ▶ Communicate the vision
- ▶ Empower employees for broad-based action
- ▶ Generate short-term wins
- ▶ Consolidate gains and produce more wins
- ▶ Anchor new approaches in the culture

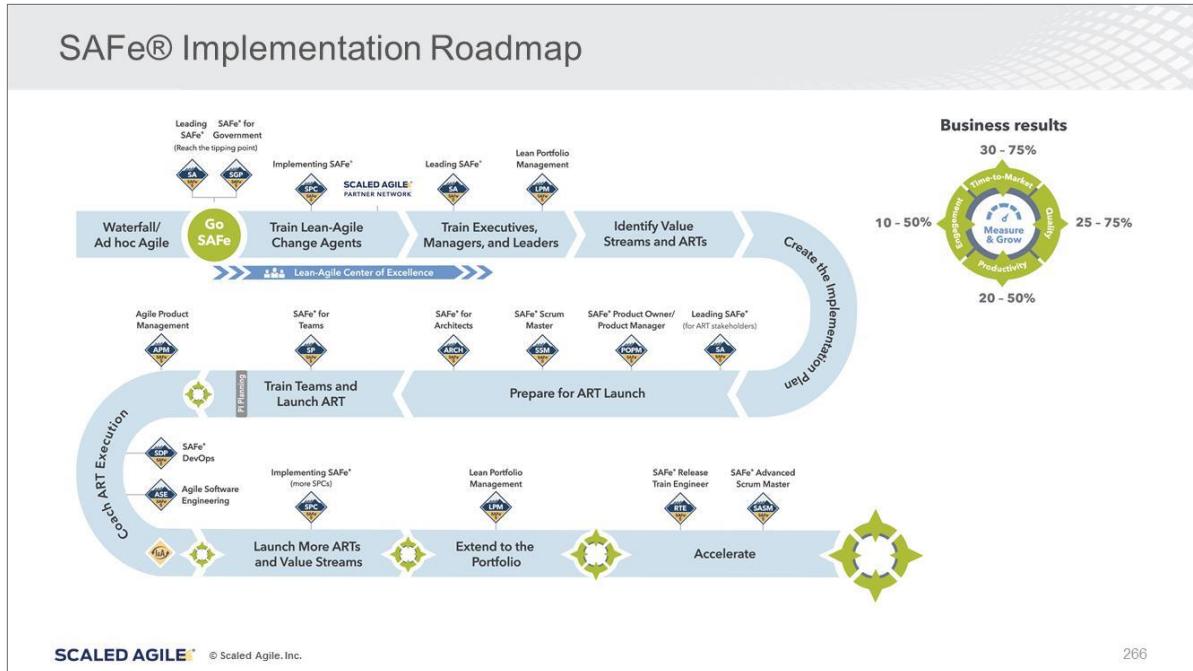


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Notes:

6.2 Lead the change



Notes:

Action Plan: Leading the change

Prepare 5 min **Share** 2 min

- ▶ **Step 1:** Identify three action items you can do in the next month to start leading the SAFe transformation.
- ▶ **Step 2:** Find a partner and share your ideas.
- ▶ **Step 3:** Discuss:
 - What outcomes do you hope to achieve with your Action Plan?

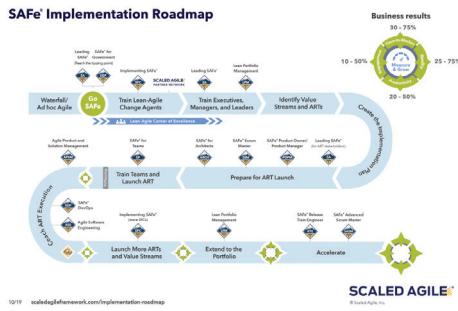
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Notes:



SAFe Agilist Action Plan

Leading the Change



Identify three action items you can do in the next month to start leading the SAFe transformation.

Lesson review

In this lesson you:

- ▶ Explored how to lead by example
- ▶ Identified actions to take for leading the change

Notes:



Scaled Agile Framework recommended reading for this lesson:

- [Lean-Agile Leadership](#)
- [Implementation Roadmap](#)

Lesson 6 notes



Enter your notes below:

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Lesson 7

Becoming a Certified SAFe Agilist

Learning Objectives:

7.1 Becoming a Certified SAFe Professional



SAFe® Course Attending this course gives students access to the SAFe® Agilist exam and related preparation materials.

Make the most of your learning



Access the SAFe Community Platform

Manage your member profile, access videos and training resources, join Communities of Practice, and more.



Prepare Yourself

Access your learning plan featuring your digital workbook, study materials, and certification practice test.



Become a Certified SAFe Professional

Get certified to validate your knowledge, expand your professional capabilities, and open the door to new career opportunities.



Access SAFe Content and Tools

Access professional development resources and your trainer enablement plan to teach SAFe instructor-led courses.



Collaborate in real time with your team and others

Choose from ready-made templates to easily set up events like PI Planning and retrospectives—all with SAFe Collaborate.



Showcase SAFe Credentials

Display your digital badge to promote your SAFe capabilities and proficiencies throughout your career.

Notes:



Video: Become a Certified SAFe Professional

Duration
3 min

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://bit.ly/2zCu2pa>



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Notes:



Video link: <https://vimeo.com/307578726>



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



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!



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Notes:



Video link: <https://vimeo.com/286920560>

Certification Exam Sample Questions

These sample questions provide examples of the format and type of questions to expect on the exam (these are not the actual exam questions). Performance on the sample questions is NOT an indicator of the performance on the exam, and it should NOT be considered an assessment tool. A web-enabled version of the sample questions are now available in a flashcard style format (internet required). Use the link below to access the sample question bank and begin preparing for certification.

To get started:

1. Click the link below
2. A browser window will open with the sample questions site
3. Click "Start"
4. Use the left-side menu to scroll and select your course
5. Click "Start" to access the sample questions



Sample questions: <http://bit.ly/3aqP4O>

Lesson 7 notes



Enter your notes below:

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

Appendix 1

Glossary



SAFe Glossary:

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