

# Lesson 4

## Facilitating Program Execution

1. Exploring the Scrum Master Role in the SAFe Enterprise
2. Applying SAFe Principles:  
A Scrum Master's Perspective
3. Exploring Agile and Scrum Anti-Patterns
4. Facilitating Program Execution
5. Improving Flow with Kanban and XP
6. Building High-Performing Teams
7. Improving Program Performance with Inspect and Adapt

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

## Learning objectives

- 4.1 Synchronize development with the Agile Release Train
- 4.2 Organize teams on the train
- 4.3 Plan the Program Increment
- 4.4 Execute the Program Increment
- 4.5 Participate in Inspect and Adapt
- 4.6 Release value on demand
- 4.7 Prepare for the next PI Planning session

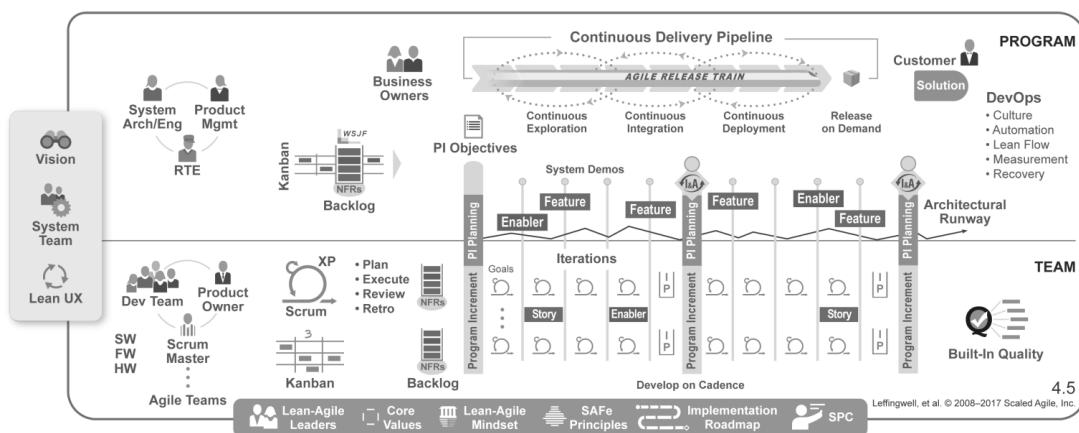
## 4.1 Synchronize development with the Agile Release Train

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### Agile Release Trains deliver Solutions

A long-lived, self-organizing team of Agile Teams.



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## The Agile Release Train

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

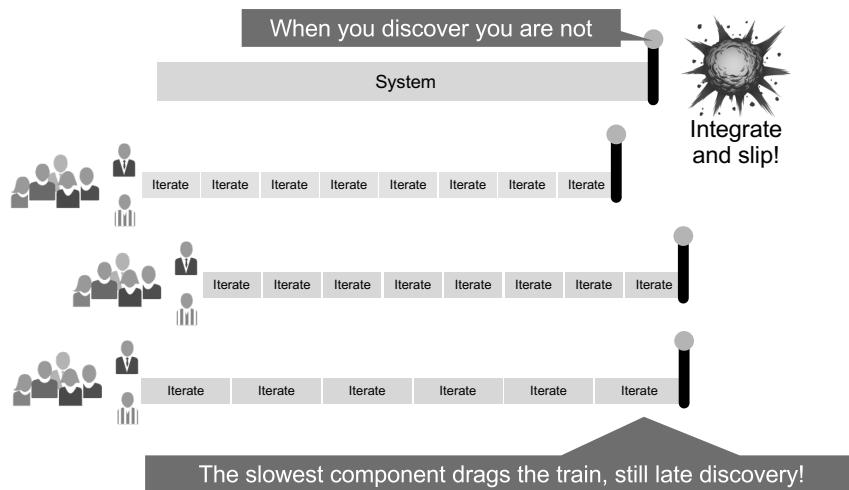


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## Cadence without synchronization is not enough

Time spent thinking you are on track



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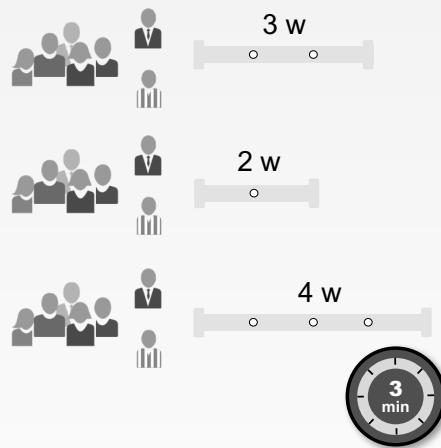
## Exercise: Different cadences

- ▶ Three teams are working on different Iteration cadences:

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

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

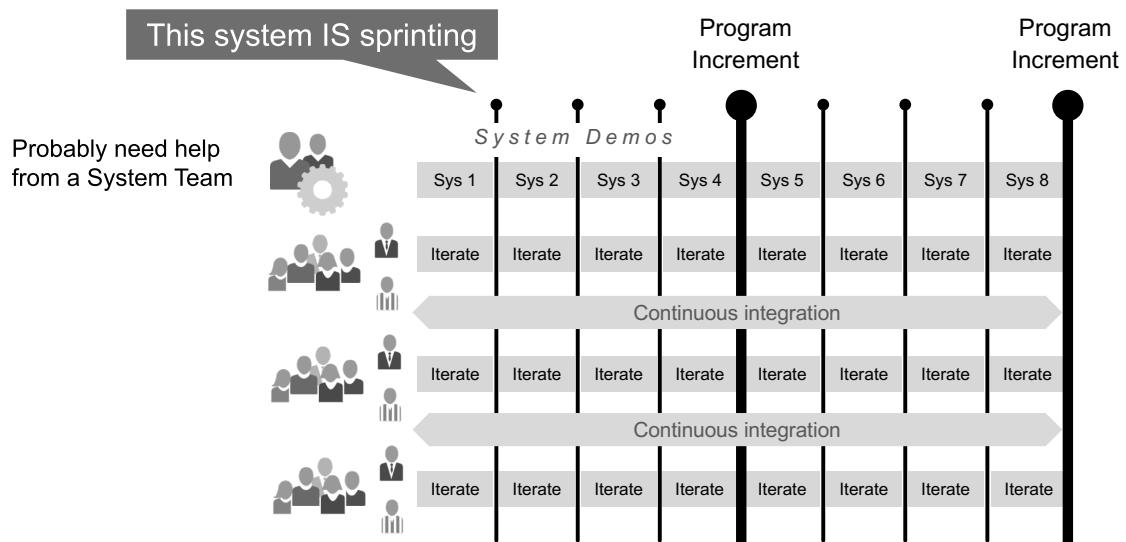
- ▶ Discuss as a group



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## Synchronize to assure delivery

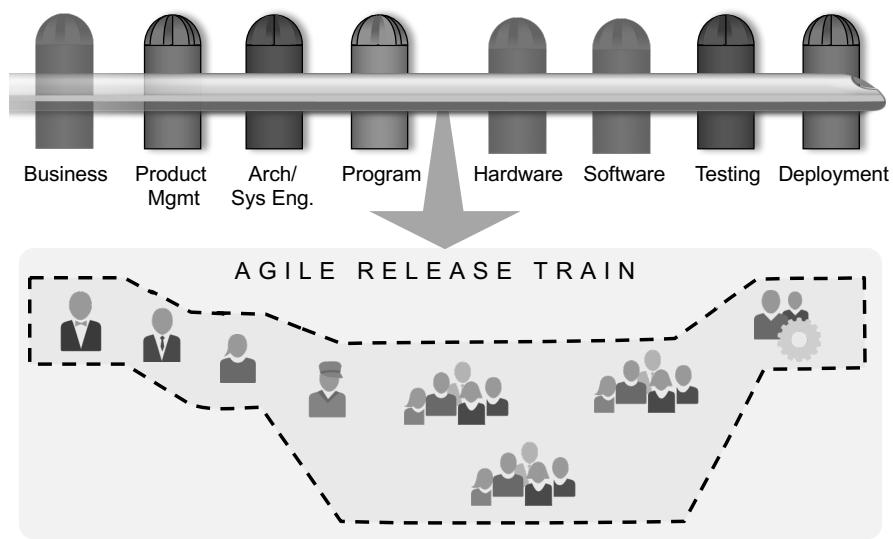


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## 4.2 Organize teams on the train

### Build cross-functional Agile Release Trains



## Organizing teams around value

Organize for the larger purpose

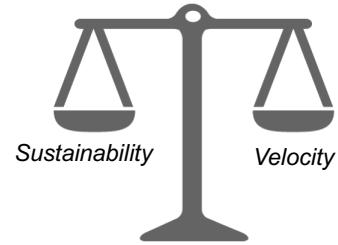
- Maximize velocity by minimizing dependencies and handoffs, while sustaining architectural robustness and system qualities

A team can be organized around

- Features
- Components

Far less desirable

- Architectural layer
  - Platform, middleware, UI, DB, business logic, etc.
- Other
  - Programming language, spoken language, technology, location



## Finding the right trade-off

Most large programs have a mix.

Lean toward Feature teams:

- Fastest velocity
- Minimize dependencies
- Develop T-shaped skills

Use Component teams when:

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

Generally avoid organizing around architectural layers, as they create team coupling and don't provide a technical separation of concerns.



## Other ART roles



Release Train Engineer acts as the Chief Scrum Master for the train.



Product Management owns, defines, and prioritizes the Program Backlog.



System Architect/Engineering provides architectural guidance and technical enablement to the teams on the train.



The System Team provides processes and tools to integrate and evaluate assets early and often.



Business Owners are the key stakeholders on the Agile Release Train.

## RTE acts as the ‘Chief Scrum Master’ for the ART

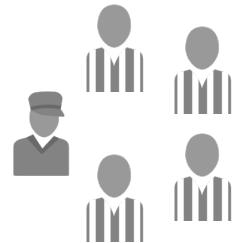
Responsibilities of the RTE include:

- ▶ Manage and optimize flow of value through the program
- ▶ Facilitate PI Planning readiness and the event itself
- ▶ Aggregate and communicate PI Objectives
- ▶ Assist with execution and Features completion tracking
- ▶ Assist with economic decision-making through Feature estimation and roll-up to Value Stream and portfolio
- ▶ Escalate and track impediments
- ▶ Foster collaboration between teams and system-level stakeholders; manage risks and dependencies
- ▶ Drive relentless improvement via Inspect and Adapt



## RTE-SM community supports ART execution

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



## Exercise: Scrum Master responsibilities on the train

- ▶ What are your responsibilities as a member of the ART Scrum Master/RTE community that go beyond basic Agile Team facilitation?
- ▶ What challenges might you face in performing this aspect of your role?
- ▶ Be prepared to discuss.



## The Product Manager owns the Program Backlog

Assumptions about requirements need to be validated. Teams must quickly feed emerging knowledge back into the Solution.

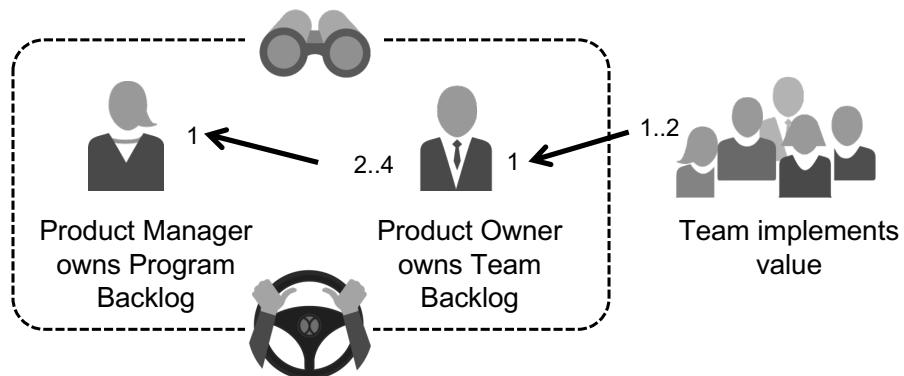
Primary responsibilities of Product Managers:

- ▶ Understand customer needs; validate Solutions
- ▶ Work with System Architect/Engineering to understand the value of Enablers
- ▶ Develop and communicate Vision and Roadmap
- ▶ Manage and prioritize the flow of work to the program
- ▶ Prepare for and participate in PI Planning
- ▶ Define releases and program increments
- ▶ Participate in demos and Inspect and Adapt
- ▶ Build an effective Product Manager/Product Owner team



## The PO/PM team steers the train

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



## Exercise: Facilitating PO/PM collaboration

- ▶ Is your Product Owner effectively collaborating with Product Management?
- ▶ Is the Product Owner sufficiently empowered to represent the 'Voice of the customer'?
- ▶ How could you help facilitate PO/PM collaboration?
- ▶ Be prepared to discuss



## 4.3 Plan the Program Increment

## PI Planning

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

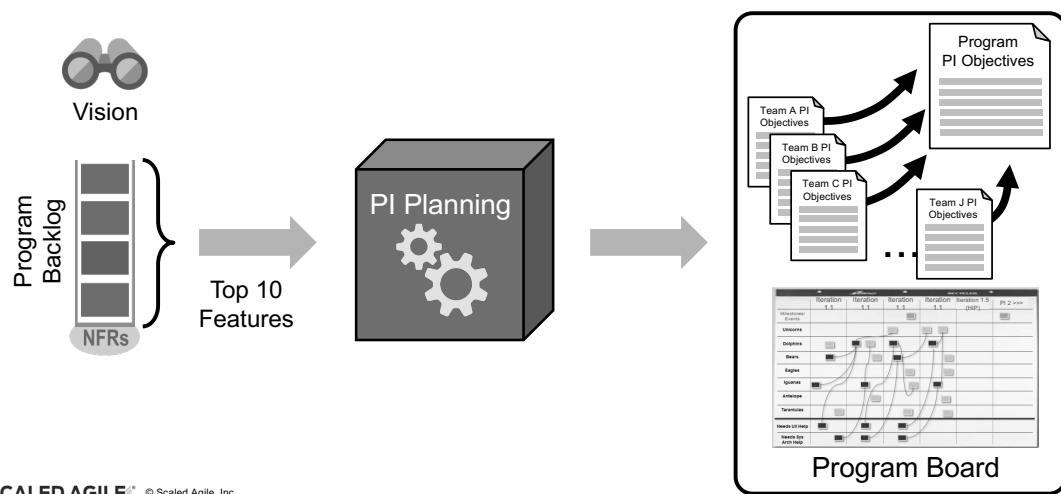
- ▶ Two days every 8 – 12 weeks (10 weeks is typical)
- ▶ Everyone attends in person if at all possible
- ▶ Product Management owns Feature priorities
- ▶ Development teams own Story planning and high-level estimates
- ▶ Architect/Engineering and UX work as intermediaries for governance, interfaces,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



## The PI Planning process

Input: Vision and top 10 Features

Output: Team and Program PI Objectives and Program Board



## Videos: Time lapse and Agile planning implementation



 <https://vimeo.com/203373064/f879c13218>



 <https://youtu.be/ZZAtI7nAB1M>

## Day 1 agenda

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 & development practices		<ul style="list-style-type: none"><li>▶ Architecture, common frameworks, etc.</li><li>▶ Agile tooling, engineering practices, etc.</li></ul>
11:30-1:00	Planning context and lunch		Facilitator explains planning process
1:00-4:00	Team breakouts		<ul style="list-style-type: none"><li>▶ Teams develop draft plans and identify risks and impediments</li><li>▶ Architects and Product Managers circulate</li></ul>
4:00-5:00	Draft plan review		Teams present draft plans, risks, and impediments
5:00-6:00	Management review & problem solving		Adjustments made based on challenges, risks, and impediments

## Business context

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

There is no prescribed format, but some options include:

- ▶ The key portfolio priorities are communicated
- ▶ The organization's strengths, weaknesses, opportunities, and threats (SWOT) are analyzed



Alex Sun, CEO, Mitchell International  
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## Product/Solution Vision

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



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## Architecture, User Experience (UX), and development practices

Architecture, UX, and development practices are first-class citizens in PI Planning, not afterthoughts!

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



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## Team breakout #1

In breakouts, each team breaks down their Features into user Stories that are estimated and placed into Iterations.

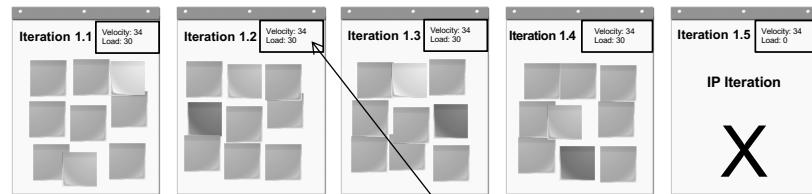


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There is a lot of back and forth between the teams, mostly about understanding and minimizing dependencies.

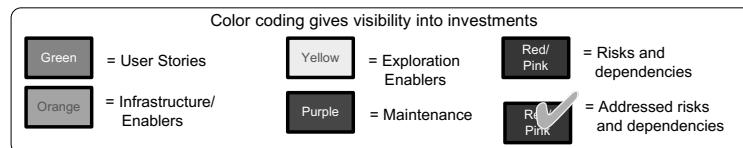
## Team plan



Velocity (Capacity): \_\_\_\_\_  
Load: \_\_\_\_\_

For velocity, use historic information or  $8 \times$  (number of developers + testers).

Be sure to adjust for holidays and vacation time.



## Exercise: Estimation

There are nine teams on the train with velocities of 32, 48, 61, 30, 65, 18, 25, 62, 38 in the Iteration. The train operates on a five-Iteration PI cadence (with the last Iteration reserved for Innovation and Planning).

- What is the train's velocity?

*NOTE: Each number above is expressed in Story points relevant to that team only, not comparable with other teams' numbers.*



## Starting fast with normalized Story points

Normalized estimation technique:

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



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

*Exclude Scrum Master and Product Owner from the calculation.*

Estimated capacity =  $5 * 8$  pts =  
40 pts/Iteration

## Color-coding Stories

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

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



Color-coding gives visibility into investments

Green

= User Stories

Yellow

= Exploration  
Enablers

Red/  
Pink

= Risks and  
dependencies

Orange

= Infrastructure/  
Enablers

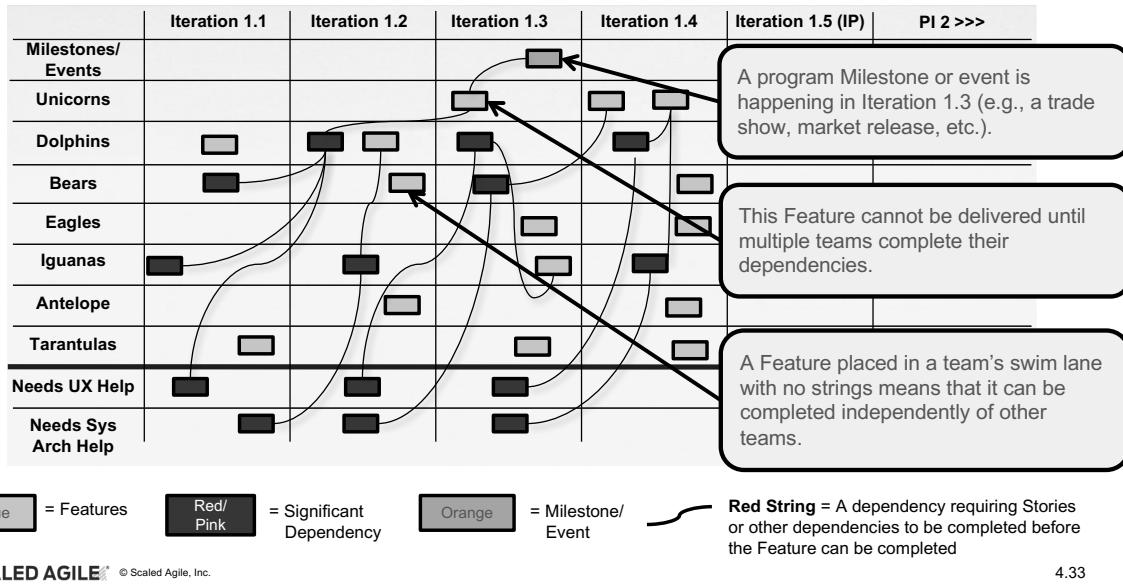
Purple

= Maintenance

Red/  
Pink

= Addressed risks and  
dependencies

## Program board - Feature delivery, dependencies, and Milestones



## Exercise: Identifying problems

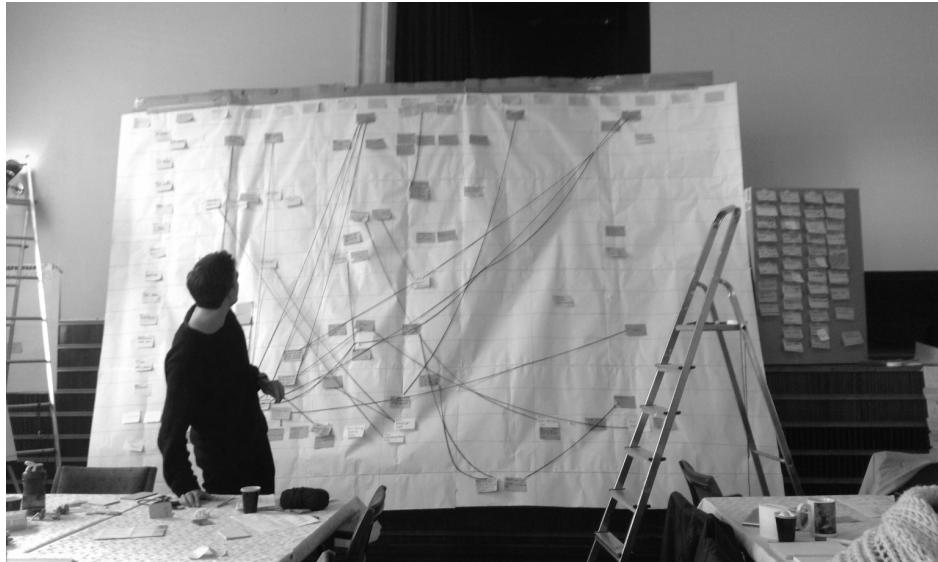
- Find a partner from another table and together review the Program Boards on the following two slides
- What problems can you identify? What can you do during PI planning? What can you do after PI planning?

Problems	Solutions during planning	Solutions after planning

PREPARE      SHARE  
6 min      4 min

*For reference*

## A real Program Board



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*For reference*

## Another real Program Board



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## 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, but not always. For example:

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

### Objectives for PI 1

### Business Value

- › Structured location and validation of locations
- › Build and demonstrate a proof of concept for context images
- › Implement negative triangulation by tags, companies, and people
- › Speed up indexing by 50%
- › Index 1.2 B more web pages
- › Extract and build URL abstracts

### Stretch Objectives for PI 1

- › Fuzzy search by full name
- › Improve tag quality to 80% relevance

## Stretch objectives

Stretch objectives provide a reliability guard band.

Stretch objectives do count in velocity/capacity:

- ▶ They are planned; they aren't extra things for teams to do "just in case you have time"
- ▶ But 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 stretch
- ▶ If an item has many unknowns, consider moving it to stretch, and put in early spikes

### Objectives for PI 1

### Business Value

- › Structured location and validation of locations
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### Stretch Objectives for PI 1

- › Fuzzy search by full name
- › Improve tag quality to 80% relevance

## Scrum of Scrums

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

Hourly Scrum of Scrums planning checkpoint:

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

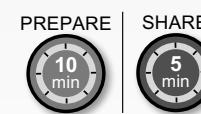
3:00 Scrum of Scrums									
	Scrum Master	Team Lead	Product Owner	Scrum Coach	Remote Team	Standup	Refinement	Planning	Review
Have all your WIs?	Y	Y	Y	N	Y	Y	Y	Y	Y
Have your individual sprint backlog?	Y	Y	Y	Y	Y	Y	Y	Y	Y
Have you checked in with your stakeholders?	Y	Y	Y	Y	Y	Y	Y	Y	Y
Have you reviewed the iteration backlog?	Y	Y	Y	Y	Y	Y	Y	Y	Y
Have you updated your dependencies?	Y	Y	Y	Y	Y	Y	Y	Y	Y
Do you have 2-3 stories ready for the next iteration?	Y	Y	Y	Y	Y	Y	Y	Y	Y

Simple planning radiators

## Exercise: Getting back on track with planning

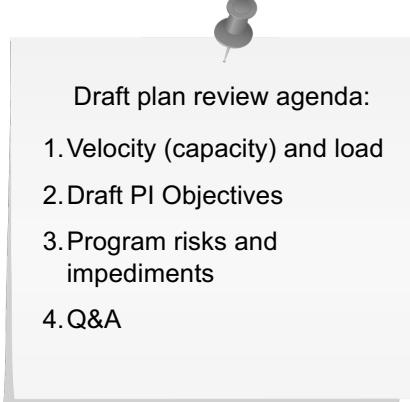
- ▶ You are at the second SoS meeting. The planning radiator shows that your team is quite behind:
  - Some Stories are estimated but none of the Iterations are completely planned and the team is way too far from formulating the PI Objectives
  - This happened because the team got into too much detail with the first bunch of Stories they considered
- ▶ The RTE made a clear suggestion that you need to use any tools at your disposal as well as any people in the planning room, but the team has to provide a draft plan at the end of the breakout.
- ▶ Your next steps? Use sticky notes and a team dot vote

3:00 Scrum of Scrums									
	Scrum Master	Team Lead	Product Owner	Scrum Coach	Remote Team	Standup	Refinement	Planning	Review
Have all your WIs?	Y	Y	Y	N	Y	Y	Y	Y	Y
Have your individual sprint backlog?	Y	Y	Y	Y	Y	Y	Y	Y	Y
Have you checked in with your stakeholders?	Y	Y	Y	Y	Y	Y	Y	Y	Y
Have you reviewed the iteration backlog?	Y	Y	Y	Y	Y	Y	Y	Y	Y
Have you updated your dependencies?	Y	Y	Y	Y	Y	Y	Y	Y	Y
Do you have 2-3 stories ready for the next iteration?	Y	Y	Y	Y	Y	Y	Y	Y	Y
Any PIs?	Y	Y	Y	Y	Y	Y	Y	Y	Y
Will you add more stories?	Y	Y	Y	Y	Y	Y	Y	Y	Y
Have Stakeholders been involved?	Y	Y	Y	Y	Y	Y	Y	Y	Y
3rd Floor?	Y	Y	Y	Y	Y	Y	Y	Y	Y



## Draft plan review

Plans are peer reviewed by all teams.



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## Management review and problem-solving

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

Common questions during the managers' review:

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



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## Day 2

8:00-9:00	Planning adjustments		Planning adjustments made based on previous day's management meeting
9:00-11:00	Team breakouts	1 2 3 4	<ul style="list-style-type: none"><li>▶ Teams develop final plans and refine risks and impediments</li><li>▶ Business Owners circulate and assign business value to team objectives</li></ul>
11:00-1:00	Final plan review & 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	1 2 3 4	If necessary, planning continues until commitment is achieved
After commitment	Planning retrospective & moving forward		<ul style="list-style-type: none"><li>▶ Retrospective</li><li>▶ Moving Forward</li><li>▶ Final Instructions</li></ul>

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## Make planning adjustments

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

Possible changes:

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



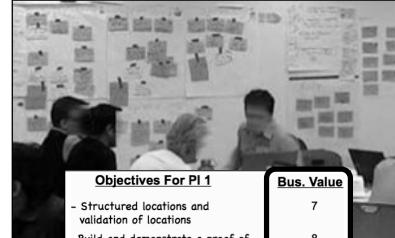
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## Team breakout #2

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
- ▶ Stretch objectives provide the capacity and guard band needed to increase cadence-based delivery reliability



Objectives For PI 1		Bus. Value
- Structured locations and validation of locations	7	
- Build and demonstrate a proof of concept for context images	8	
- Implement negative triangulation by: tags, companies and people	8	
- Speed up indexing by 50%	10	
- Index 1.2 billion more web pages	10	
- Extract and build URL abstracts	7	
===== Stretch Objectives =====		
- Fuzzy search by full name	7	
- Improve tag quality to 80% relevance	4	

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

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

Objectives For PI 1		Bus. Value
- Structured locations and validation of locations	7	
- Build and demonstrate a proof of concept for context images	8	
- Implement negative triangulation by: tags, companies and people	8	
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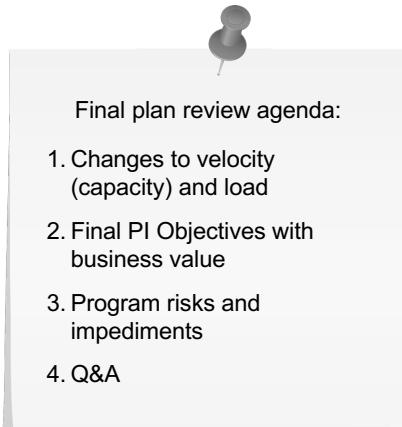


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## Final plan review

Teams and Business Owners peer-review all final plans.



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## Building the final plan

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



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## Addressing program risks

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

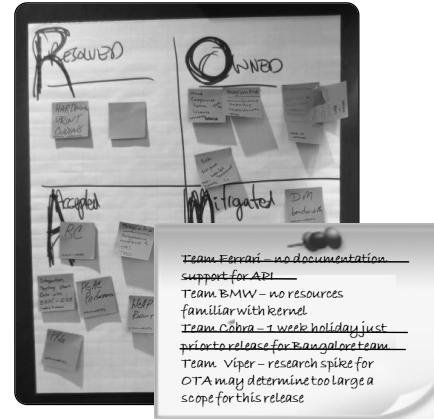
ROAMing risks:

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



## Confidence vote: Team and Program Levels

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

'Fist of five' confidence vote

- ▶ Range of 1-5
- ▶ 1 = No confidence
- ▶ 5 = Very high confidence



A commitment with two parts:

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

## Plan rework if necessary

What happens if there is low confidence? Rework!

The program timebox:

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



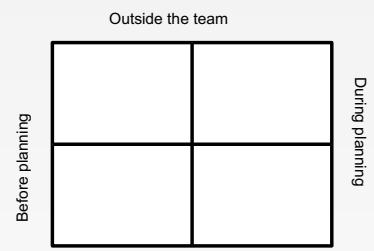
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## Exercise: Being proactive about the confidence vote

- ▶ Working as a team, explore the key factors that impact the team’s confidence vote
- ▶ Create a list of action items that you, as a team facilitator, would consider to proactively enable a high confidence level on your team
- ▶ Be ready to present the list

*Hint: Split the sheet into four quadrants and explore action items in each quadrant.*

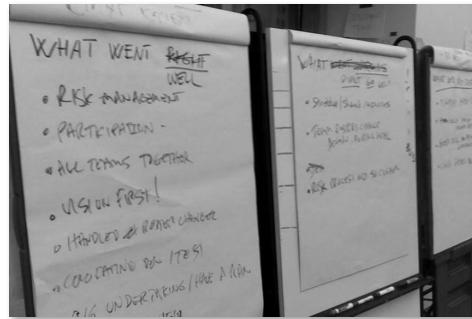


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## Run a Planning Meeting retrospective

The PI Planning Meeting will evolve over time. Ending with a retrospective will help it continuously improve.



Add the action items to your Program Backlog and take action!

## Moving forward

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

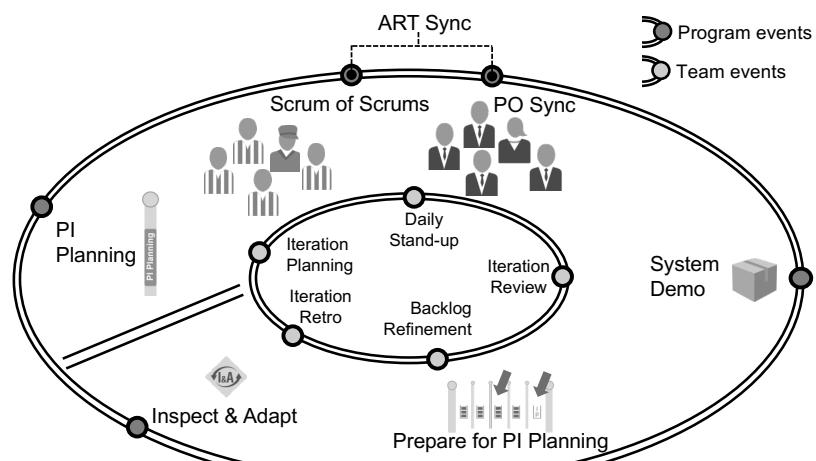
- ▶ Capturing objectives and Stories in Agile project management tooling
- ▶ Aggregating Team PI Objectives to Program PI Objectives
- ▶ Setting Scrum of Scrum cadence, Release Management Team cadence, System Demo cadence, etc.
- ▶ Program Backlog refinement and next PI Planning preparation events
- ▶ Summarizing changes to engineering practices
- ▶ Cleaning up the room



## 4.4 Execute the Program Increment

### Program events drive the train

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



## ART Sync is used to coordinate progress

Programs coordinate dependencies through sync meetings.



Scrum of Scrums

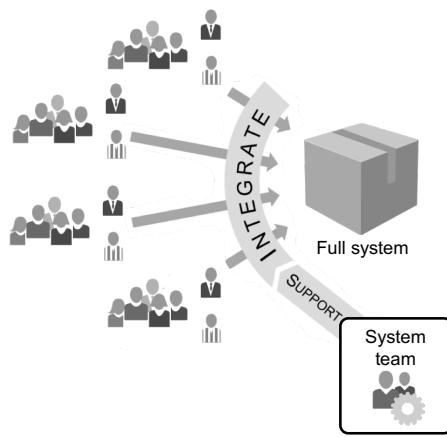
ART Sync



PO Sync

- ▶ 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”
- ▶ 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’

## Demo the full system increment every two weeks

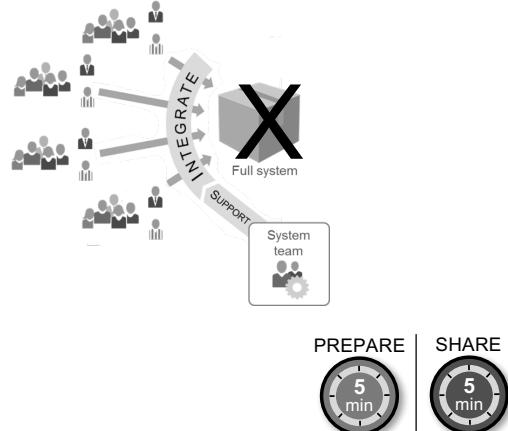


- ▶ Features are functionally complete or ‘toggled’ so as not to disrupt demonstrable functionality
- ▶ New Features work together, and with existing functionality
- ▶ Happens after the teams’ demo (may lag by as much as one Iteration, maximum)
- ▶ Demo from a staging environment, resemble production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



## Exercise: “You let us down ...”

- ▶ This time the System Demo did not happen
- ▶ All teams that had new product functionality merged their changes and your team was the last to merge theirs...and the process didn't go well
- ▶ You have nothing to show at the demo and other Scrum Masters are giving you a look
- ▶ Suggest the next steps



## Innovation and Planning Iteration

Facilitate reliability, Program Increment readiness, planning, and innovation

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



*Provide sufficient capacity margin to enable cadence.*

—Don Reinertsen, *Principles of Product Development Flow*

## IP Iteration calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
31	1	2	3	4	5	6
			Validation (if shipping)			
			Innovation / hackathon / spikes for next PI			
			PI Planning readiness			
7	8	9				
			<b>Continuing Education</b> <b>Inspect and Adapt workshop</b>	<b>PI Planning</b> <ul style="list-style-type: none"> <li>8:00-9:00 Business Context</li> <li>9:00-10:20 Product/Solution Vision</li> <li>10:30-11:30 Architecture Vision &amp; Development Practices</li> <li>11:30-12:00 Planning Requirements &amp; Lunch</li> <li>1:00-4:00 Team Breakouts</li> <li>8:00-9:00 Planning Adjustments</li> <li>9:00-11:00 Team Breakouts</li> <li>11:00-12:00 Final Plan Review &amp; Lunch</li> <li>1:00-2:00 Program Risks</li> <li>2:15-2:45 PI Confidence Vote</li> <li>3:00-4:00 Draft Plan Review</li> <li>5:00-6:00 Management Review &amp; Problem Solving</li> <li>After Commitment Plan Rawwork If Necessary</li> <li>Planning Retrospective &amp; Moving Forward</li> </ul>		
				12	13	

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## 4.5 Participate in Inspect and Adapt

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## Inspect and Adapt

Three parts:

1. The PI System Demo
2. Quantitative measurement
3. The Problem-Solving Workshop

► Attendees: Teams and stakeholders

► Timebox: 3–4 hours per PI

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## PI System Demo

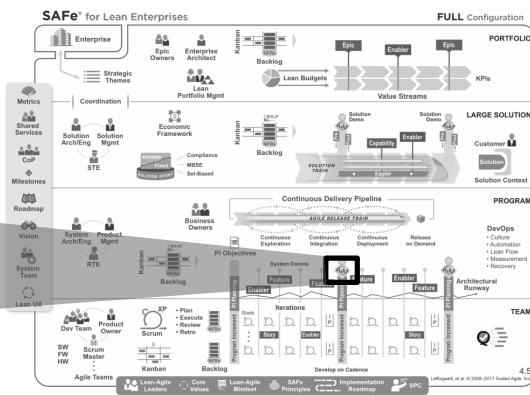
At the end of the PI, teams demonstrate the current state of the Solution to the appropriate stakeholders.

- 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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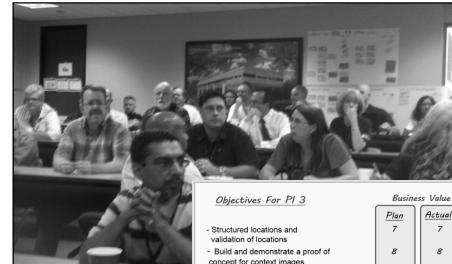
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## Program Performance Reporting

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

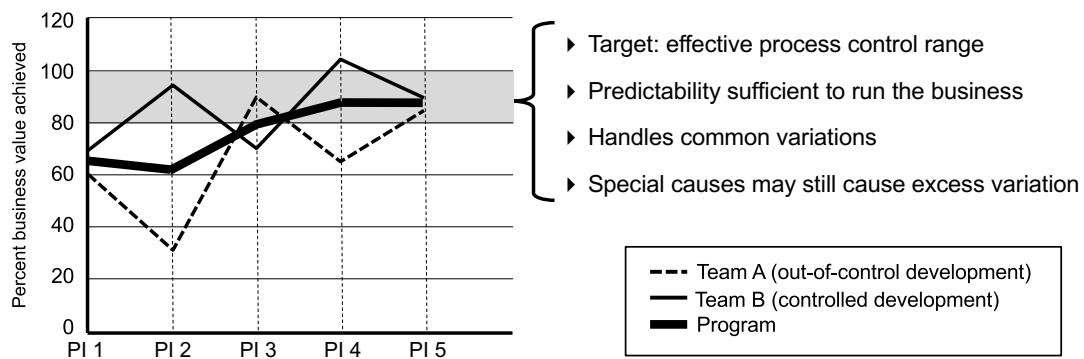
- ▶ Teams meet with their Business Owners to self-assess the business value they achieved for each objective
- ▶ Each team's planned vs. actual business value is then rolled up to the Program Level in the Program Predictability Measure



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

## PI Predictability Measure

The PI Predictability Measure shows whether achievements fall into an acceptable process control band.



## Exercise: “What is our performance goal?”

- In this PI, your team accomplished 78% of their total value on the PI Objectives
- The team is frustrated, especially since a few teams on the train scored above 95%
- How would you articulate to the team what this number is for and what their real performance goals should be like?

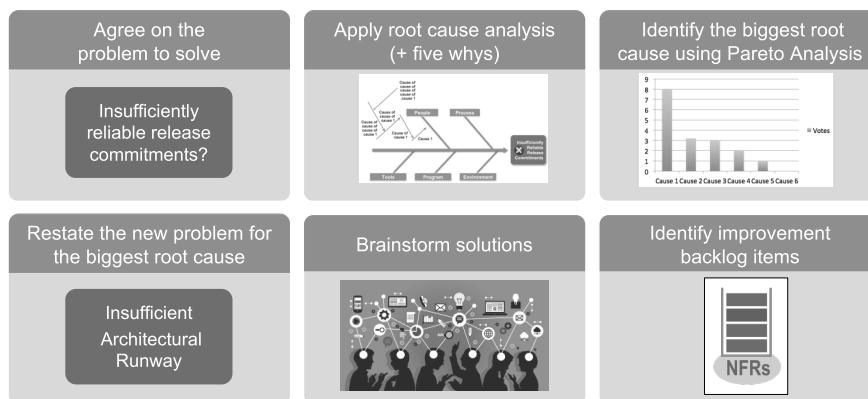
Objectives For PI 3		Business Value	
Plan	Actual	Plan	Actual
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- Build and demonstrate a proof of concept for context images		8	8
- Implement negative triangulation by: tags, companies and people		6	6
- Speed up indexing by 50%		10	5
- Index 1.2 billion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

PREPARE  
5 min

SHARE  
5 min

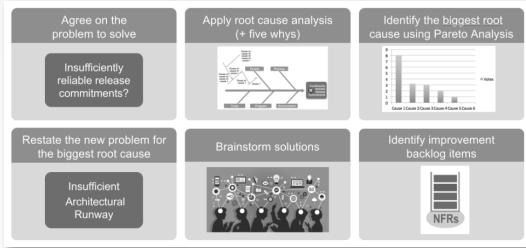
## The Problem-Solving Workshop

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



## Exercise: Prepare for the Problem-Solving Workshop

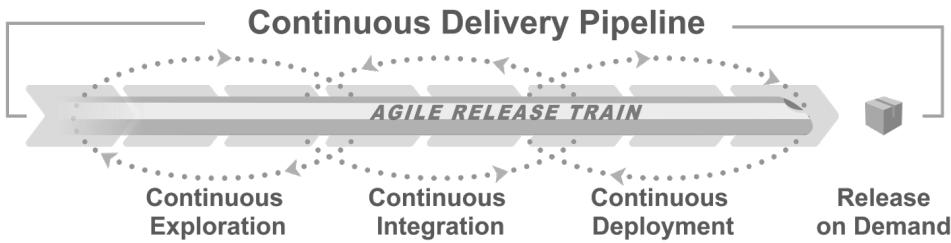
- ▶ In two days, your team will be attending the Problem-Solving Workshop with the rest of the program
- ▶ What kind of preparation would you do with your team for that event?



PREPARE | SHARE  
5 min | 5 min

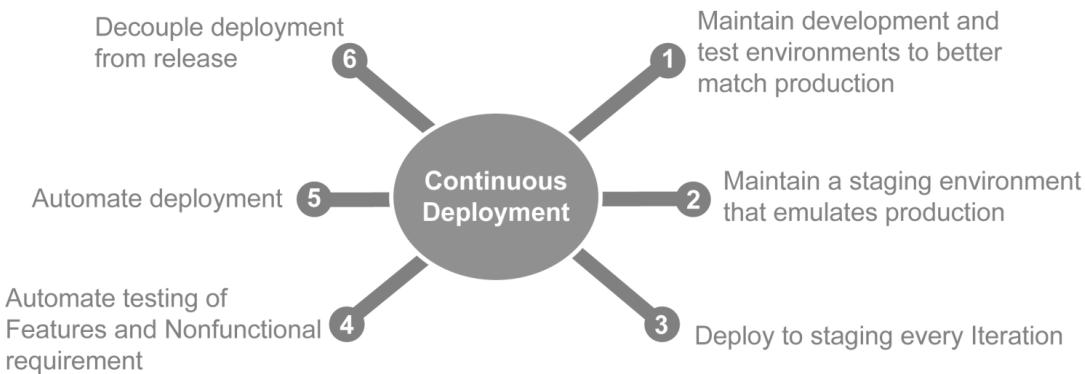
## 4.6 Release value on demand

## ARTs continuously deliver value



## Six Recommended Practices for Continuous Deployment (CD)

CD is an important practice for every team member, the team, and the ART.



## What is DevOps?

An Agile approach to bridge the gap between development and operations to deliver value *faster and more reliably*.

### Development:

- ▶ Create Change
- ▶ Add or Modify Features

### DevOps

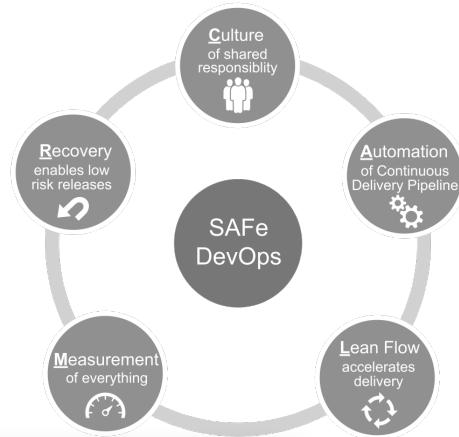
### Operations:

- ▶ Create Stability
- ▶ Create or enhance services

*DevOps is a capability of every Agile Release Train*

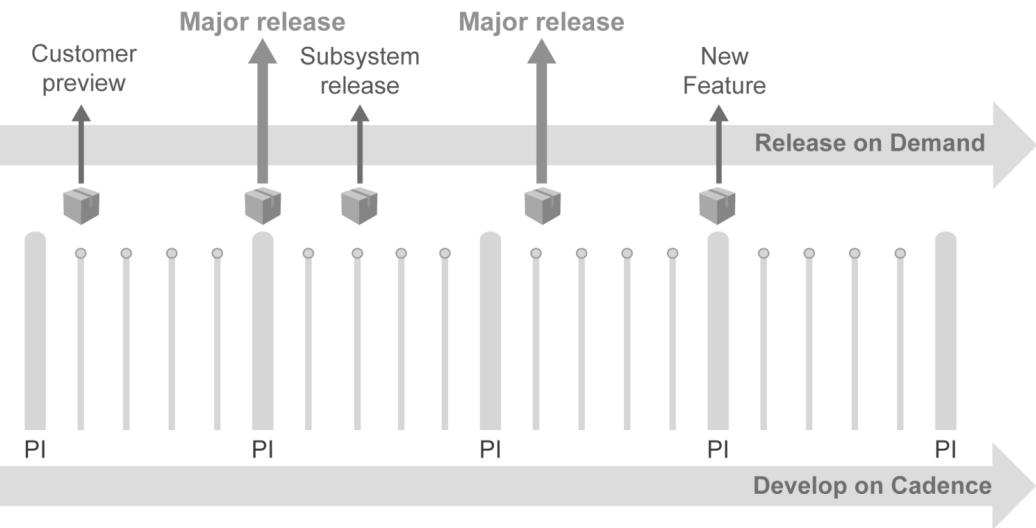
## A CALMR approach to DevOps

- ▶ **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 application telemetry.
- ▶ **R**ecover Architect and enable low-risk releases. Establish fast recovery, fast reversion, and fast fix-forward.



Bing: Continuous Delivery  
<https://youtu.be/3sFT7tgyEQk>  
3:28

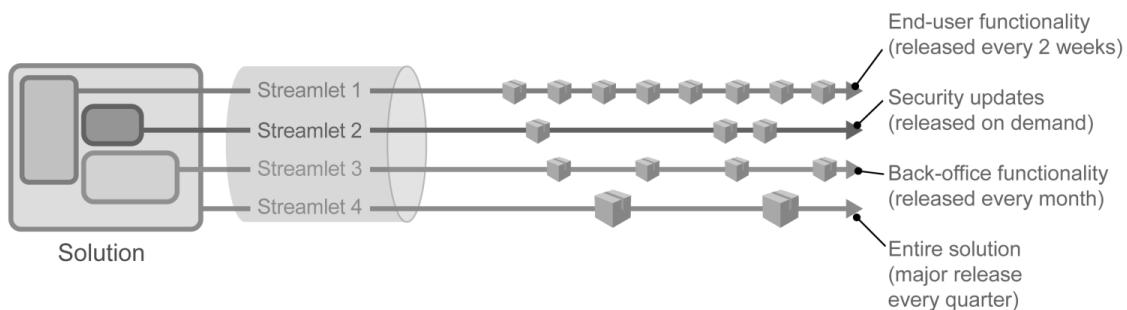
## Decouple deployment from release



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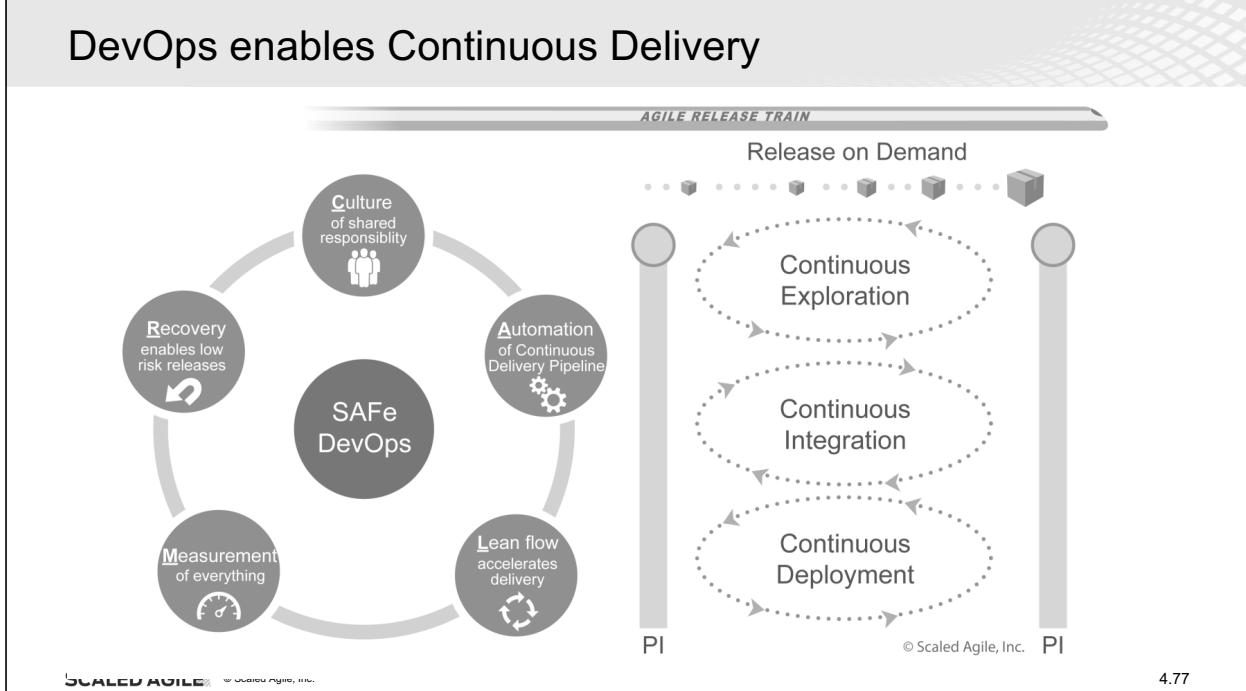
## Decouple release elements from the total solution



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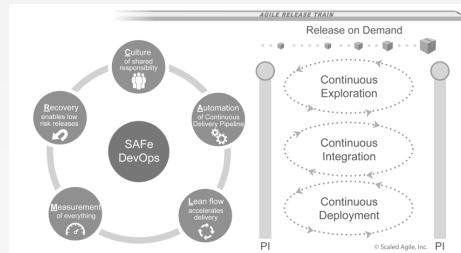
## DevOps enables Continuous Delivery



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## Exercise: A Scrum Master's Job

- ▶ Find another person
- ▶ Come up with three ideas that you can implement to improve the flow through the Continuous Delivery Pipeline and DevOps.
- ▶ Find a new person and share the three ideas you've had with each other.
- ▶ Prepare to share ideas.



PREPARE | SHARE  
10 min | 2 min

## 4.7 Prepare for the next PI Planning session

### Key stakeholders prepare briefings

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

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



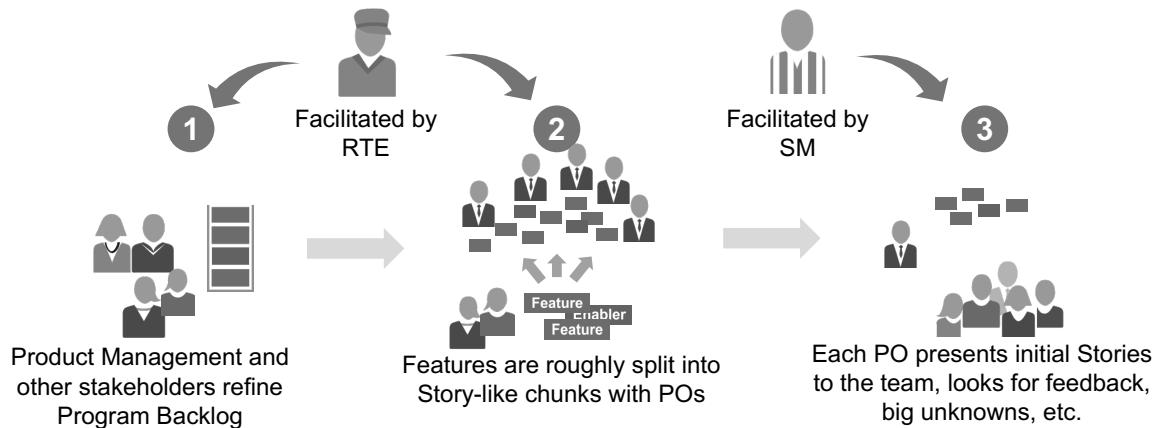
Feature

Enabler

NFRs

## New PI content should not be a surprise

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



## Exercise: Your next move

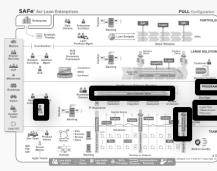
- ▶ Let's recap what we learned in this lesson
- ▶ As a team (table), move through every step in the board game
- ▶ At each step, discuss the activity and what the Scrum Master has to do to make it more efficient



## Lesson summary

In this lesson, you:

- ▶ Learned how Agile Release Trains are built
- ▶ Explored how Scrum Master can help trains plan, execute, and review the results more effectively
- ▶ Learned how teams deliver value on demand



Suggested Scaled Agile Framework reading:

- “Agile Release Train” article
- “PI Planning” article
- “Release Train Engineer” article
- “Program Level” article
- “DevOps” article