



# **PMI-ACP® EXAM PREP**

## PMI Authorized Training Partner

### **BOOTCAMP Session 7**

- This course will assist learners in preparing for PMI's PMI-ACP Exam (2024 Update)

#### **ATTENDENCE TRACKING**

**Percipio Users:**  
Name is based on your log in information in Percipio

**Using Zoom:**  
Enter your first and last name

# BREAKS



**Yes! We will have periodic breaks**

**For attendance purposes, please stay logged in during all breaks.**



# CHAT vs Q & A

Please use the **Chat** for:

- **Greetings** before the session starts and during breaks
- Once the session starts , the chat may be closed or changed to *Hosts & Panelists Only* to minimize disruptions and focus on important information.
- The instructor may open the chat during the session for student **to respond to the instructor's questions** and create a group dialog.

# CHAT vs Q & A

Please use the **Q&A** for:

- **Technical assistance** – Begin with: Percipio or Non-Percipio student
- Guidance on how to **access course material** – Begin with: Percipio or Non-Percipio
- Clarification and **questions on lecture points**, if not answered by instructor
- The Q&A may be open and closed throughout the session to allow us to address questions/issues in a timely manner.
- **Please be very patient, the support team responds to many inquiries per session**

# IS LIVE ATTENDANCE REQUIRED?

- **YES**, if you are taking this training to register for the PMI-ACP exam
- You are **allowed to miss up to two sessions IF** you make up the sessions by **watching the video replays**.
- A **missed session means** you were disconnected for **more than a total of 15 mins** for the duration of the session.
- If you **miss three or more sessions**, you will need to make up the missed time by **attending live in another 8-day cohort**.
- \*Please see the Bootcamp Calendar for information about upcoming sessions at: <http://calendar.skillsoft.com/>



# ACCESSING THE

# VIDEO REPLAYS

1. Go to: <https://github.com/Skillsoft-Content/PMI-ACP-Replay>
2. Replays will be available within 2 business days after the session ends.
3. Click on the Excel file for the year you attended the Bootcamp. You won't see a *file open* option, but it is selected.
4. Click the *Download raw file* button on the far left-hand side.
5. Open the downloaded file using this password: acpB00tcampReplay!

Those are zero's not the letter O. The password is case sensitive.



7. Locate and open the worksheet tab that corresponds with the bootcamp you attended
8. Make a note of the passcode.
9. Paste the provided link into your browser.
10. Complete the required registration steps
11. Input the passcode when prompted  
The password to open the Excel file is NOT the passcode to access the replay.

Note: Replays will be available for 1 year.  
They are not available for download.

**No limit to watch replays to study**

PMI®-Authorized PMI Agile  
Certified Practitioner (PMI-ACP)®  
Exam Preparation Course

Lesson Four

# Delivery

Version 1.0 | 2024 Release



# During this segment



Seek early feedback



Manage agile metrics



Manage impediments and risk



Recognize and eliminate waste



Perform continuous improvements



Engage customers



Optimize flow



Determine which metrics are appropriate for a given audience



Radiate metrics across the relevant audience



Review and analyze metrics



Use metrics insights for decision-making



Seek early feedback



Manage agile metrics



Manage impediments and risk



Recognize and eliminate waste



Perform continuous improvements



Engage customers



Optimize flow



# Use metrics insights for decision-making

**Section 4 of 4**

# Velocity

A measure of the average amount of work a team can complete in one iteration



# Velocity trends



Project  
schedule



Potential issues



Realistic  
goals

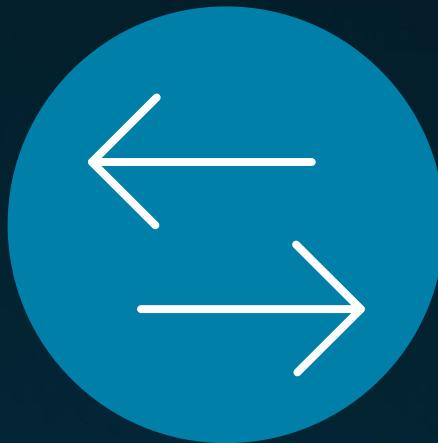


Improve team  
performance

# Challenges with velocity



**Easy to  
manipulate**



**Not easily  
compared**



**Internal use**

# Use CSAT scores to improve customer satisfaction

Identify areas where customers are not satisfied with the product or service being delivered





## Use CSAT scores to evaluate team performance

Evaluate the team's performance in delivering a product or service that meets customer needs

# Defect density

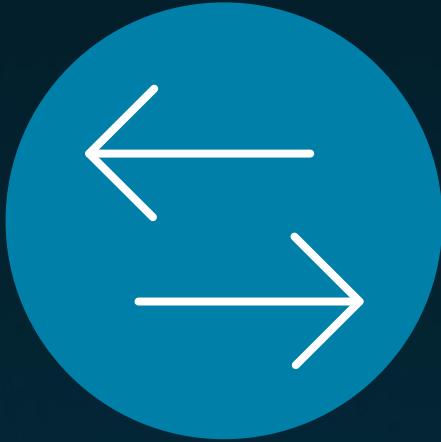
The number of defects found during a period of development divided by the size of the overall project



# Using defect density to help make decisions



Identifying  
areas for  
improvement



Comparing  
projects



Quality  
goals



Evaluating team  
performance

# Eliminating bottlenecks

When people performing a specific step in the development process can't keep up with the amount of incoming work



# Spotting bottlenecks

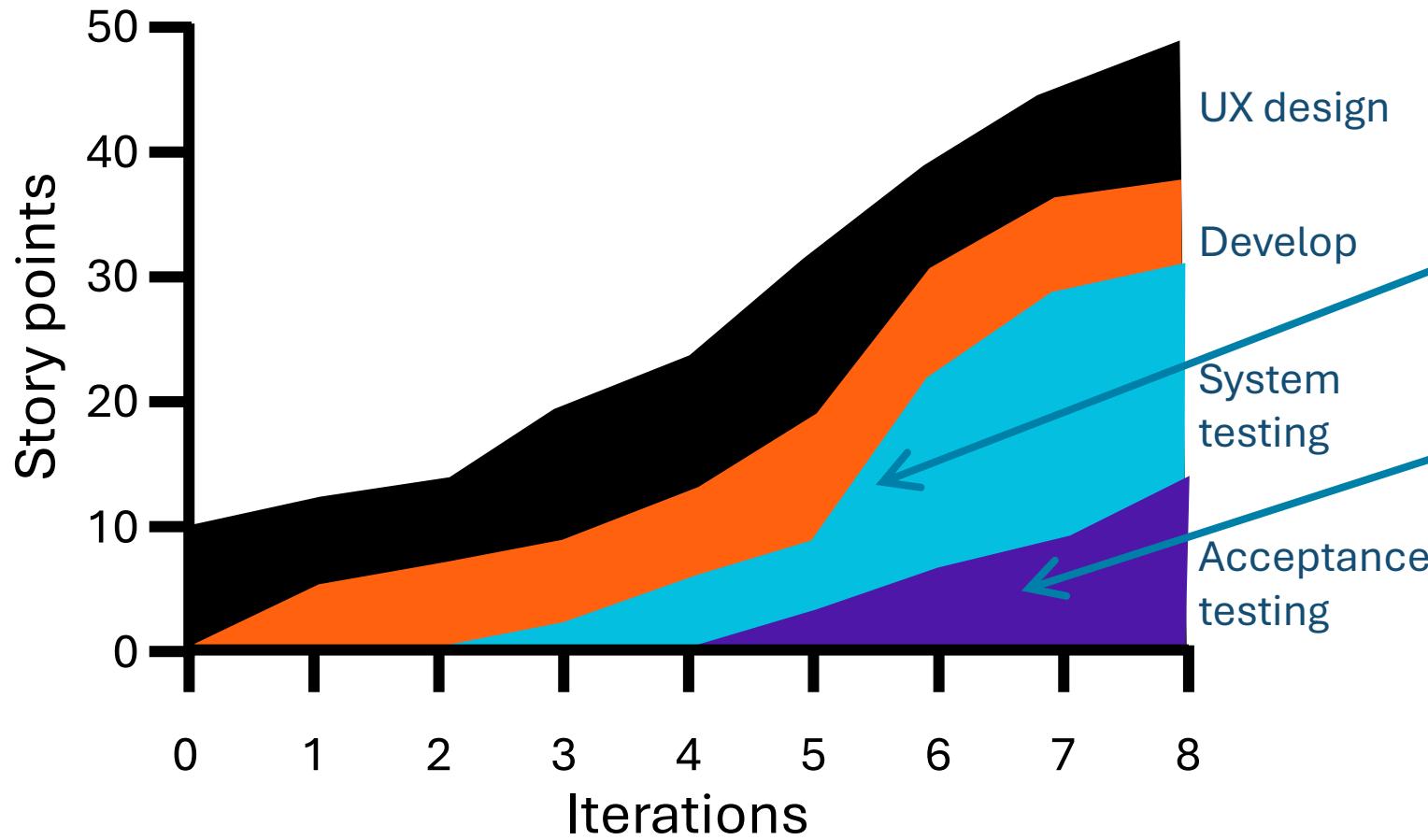


**Cumulative flow  
diagrams**



**Value stream  
mapping**

# Using a cumulative flow diagram to identify a bottleneck



# What is a value stream?

A **value stream** is an organizational construct that focuses on the flow of value to customers through the delivery of specific products or services.



# Value stream: Buying a cup of coffee



This diagram highlights the value stream for the customer

The customer enjoys the drink

# Steps in making a value stream map



**Identify the actions**



**Time worked on**



**Time waiting**



**Time between steps**



**Loopbacks**



**Visual**

# You can do the same thing at your organization

Value stream maps make the work taking place visible

This makes it possible for people to have intelligent conversations

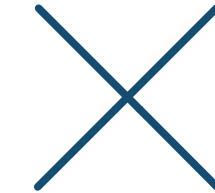


# Knowledge check

**True or false: The value stream begins and ends with the organization.**



True



False

# Knowledge check

What might the inflection at point A in the cumulative flow diagram shown below indicate?



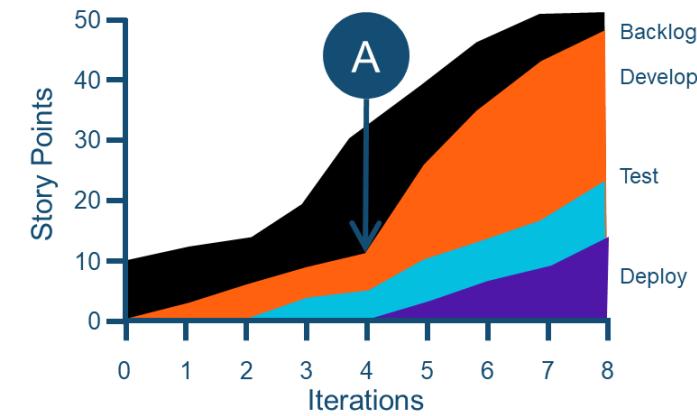
Excess capacity in test



A bottleneck in test



A bottleneck in deploy



The sharp increase in the amount of work in Develop could indicate a **bottleneck in Test**. It appears Test is falling behind since it is the activity below the widening area.



**Proactively identify risks and impediments**



**Engage the team to find the most appropriate course of action**



**Prioritize impediment removal and risk mitigation activities**



**Monitor and control risks and impediments**



**Use lessons learned to avoid risk and impediment recurrence**



**Seek early feedback**



**Manage agile metrics**



**Manage impediments and risk**



**Recognize and eliminate waste**



**Perform continuous improvements**



**Engage customers**

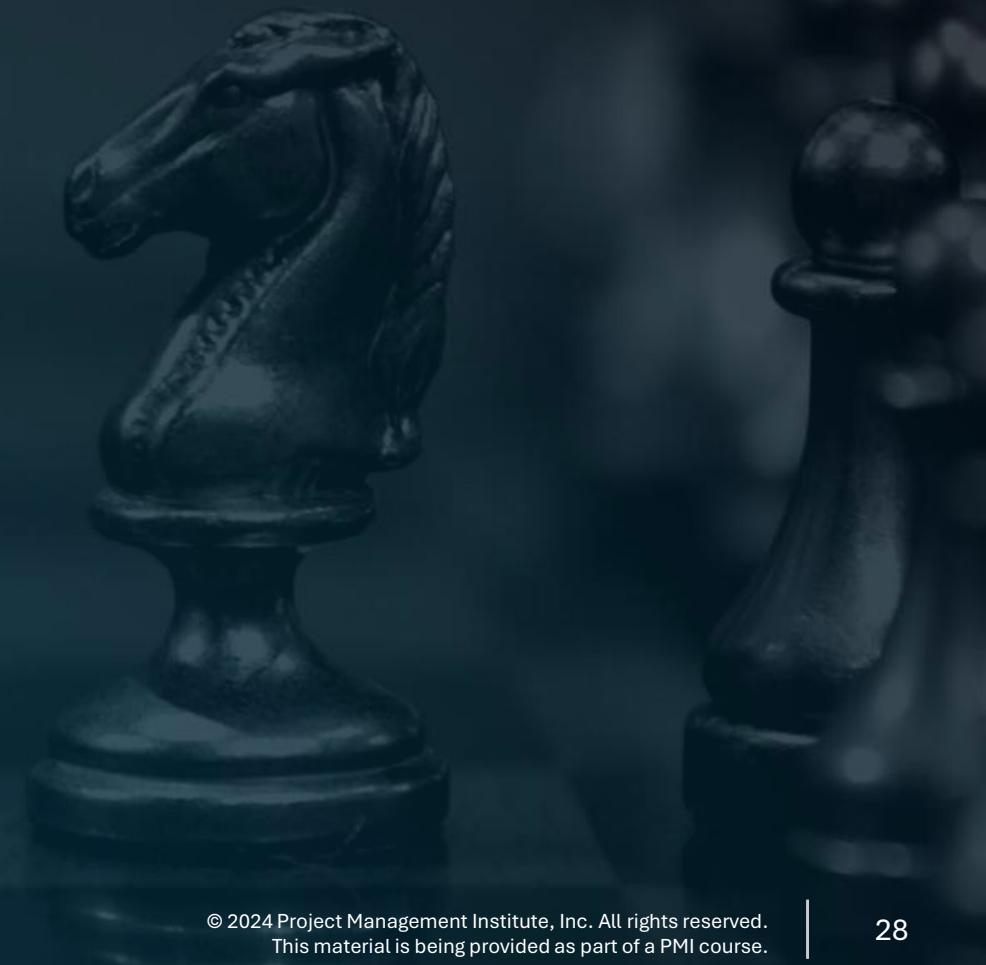


**Optimize flow**



# Proactively identify risks and impediments

**Section 1 of 5**



# What is risk?

**Risk** is an uncertain event or condition that—if it occurs—will have a positive or negative effect on one or more of the project's objectives.



Source:  
Project Management Institute. (2017). *Agile practice guide*. PMI.

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This material is being provided as part of a PMI course.

# Risks can be positive and negative



Risks with positive outcomes  
are called opportunities



Risks with negative outcomes  
are called threats

# What is risk management?

**Risk management** is the processes of identifying and analyzing project risks and determining appropriate responses.

# Agile is not a risk management approach

Building something iteratively does not ensure risks are managed



A close-up photograph showing a person's hand reaching out to stop a series of wooden blocks from falling in a domino effect. The hand is positioned over the middle of the line of blocks, which are arranged on a light-colored surface. In the background, more wooden blocks are visible, slightly blurred. The lighting is soft, creating a dramatic effect on the hand and the blocks.

## Layering risk management into agile

Agile approaches offer many cycles and mechanisms that can be used for risk management

# Identifying risks and impediments



**Collaborative  
discussions**



**Expert judgment**



**Formal  
risk session**



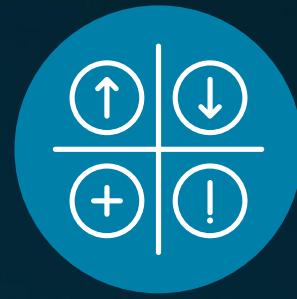
**Informal  
risk session**



**Interviews**



**Patterns and  
common lists**



**SWOT  
analysis**

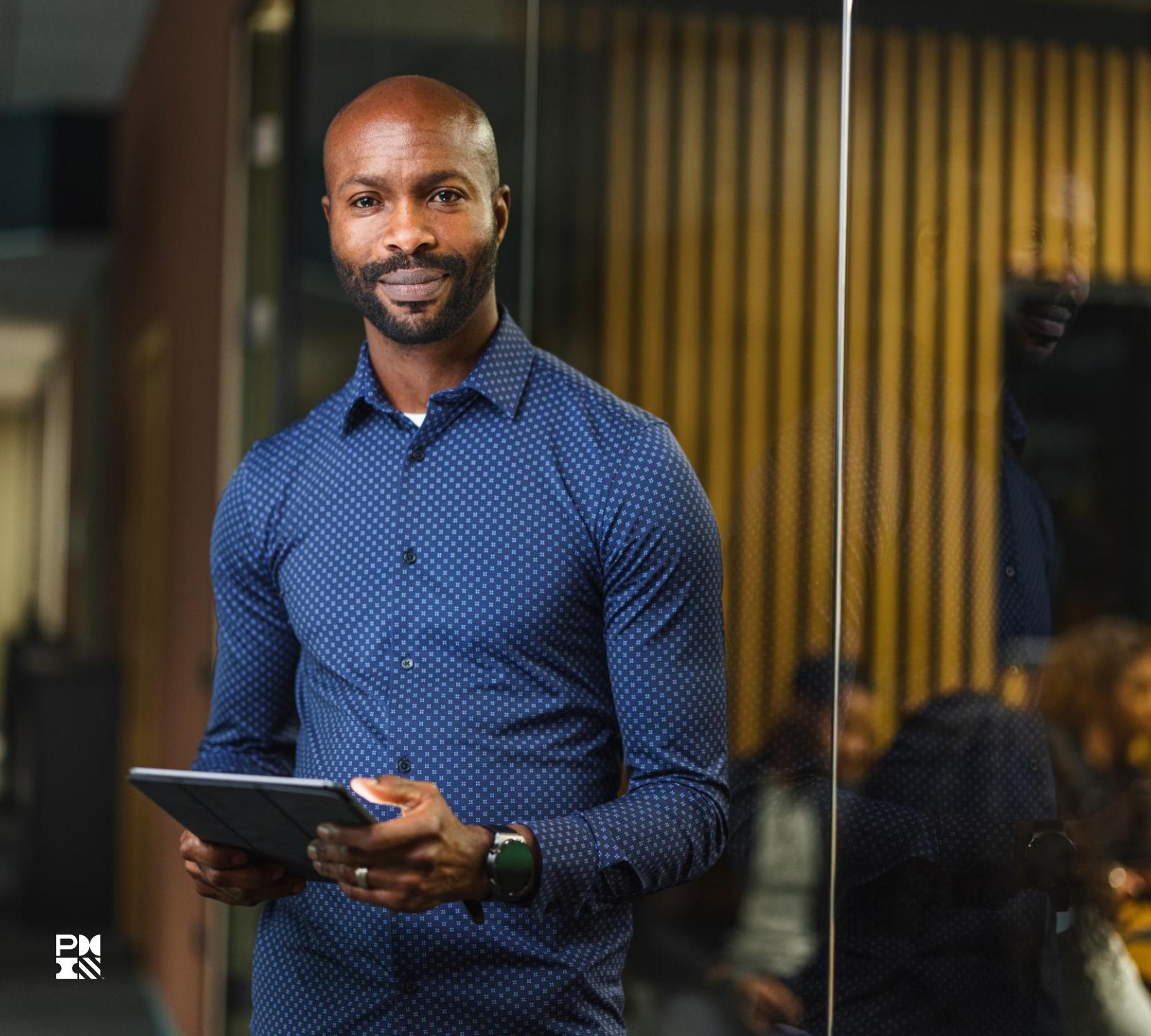
# Collaborative discussions

Wide range of opinions

Discussion needs to be facilitated

May not be willing to publicly discuss some risks



A professional photograph of a Black man with a beard and mustache, wearing a blue button-down shirt with a small white pattern. He is smiling and holding a dark-colored tablet in his hands. He is positioned in front of a window with vertical blinds, and the background is blurred, showing an interior space with warm lighting.

## Expert judgment

Quick

May not have access

Inexperienced teams may  
ignore risks identified by  
experts

# Formal risk session

Makes risks visible

Useful in disagreement

Regulatory compliance

Advance preparation

Difficult to schedule

Rubber-stamping





## Informal risk session

Inclusive

Minimal preparation

Difficult to schedule

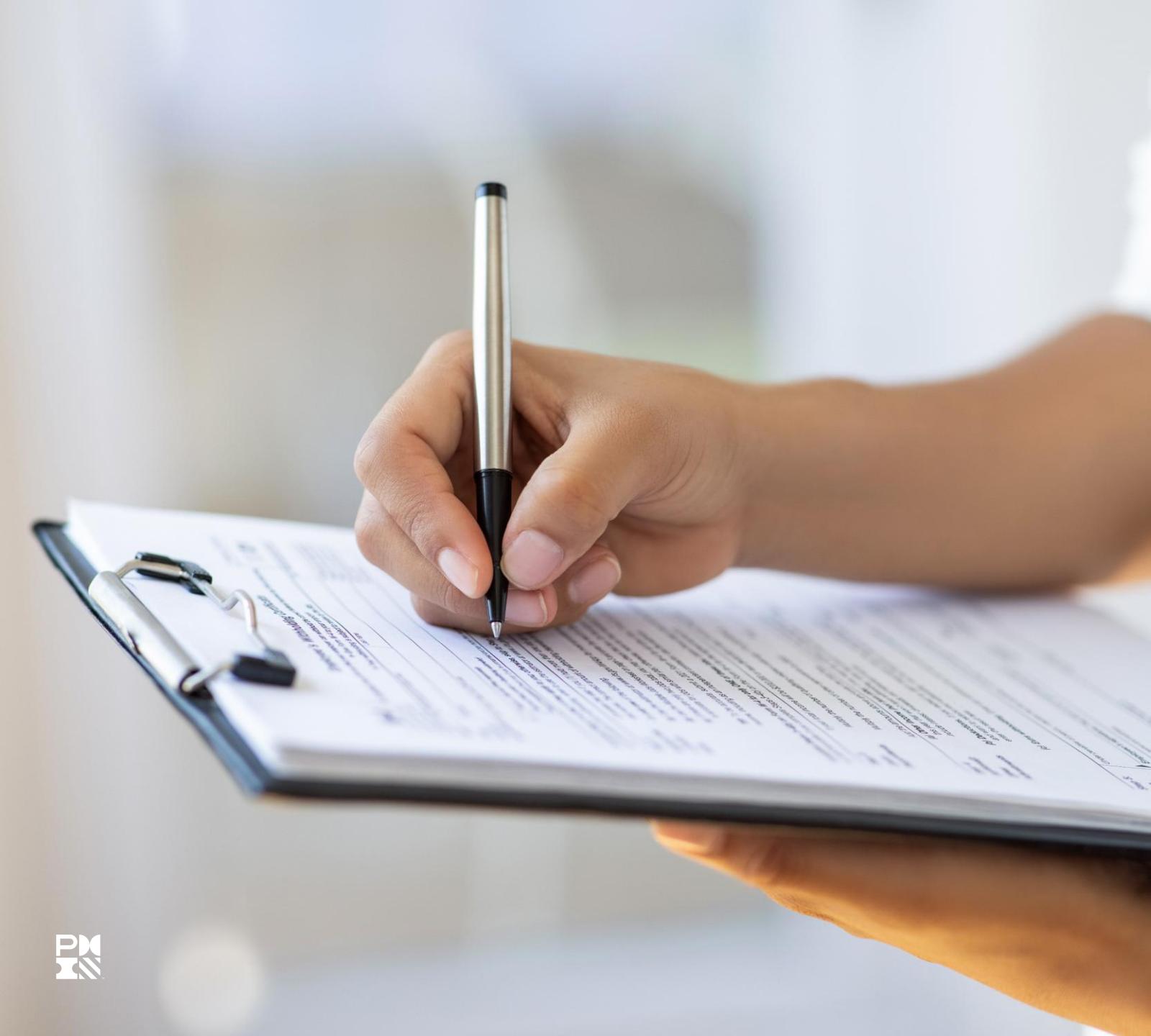
Applicable to regulatory  
situations

# Interviews

Private discussions about risks that people may not be willing to discuss openly

Miss risks when not discussed as a group



A close-up photograph of a person's hand holding a black and silver pen, poised to write on a white clipboard. The clipboard holds a sheet of paper with a grid of checkboxes and some handwritten notes. The background is blurred.

## Patterns/ common lists

Reusing lists

New types of risks may  
be missed

# SWOT analysis

Identifies positive risks

Competitive situations

Collaborative  
group discussions

Goes beyond threat  
identification

Can take time





# Engage the team to find the most appropriate course of action

**Section 2 of 5**

# Why engage the team?

Better decisions

Promotes problem-solving

No endless appeals

Fosters action



Source: Wondolleck, J., & Yaffee, S. (2000). *Making collaboration work: Lessons from innovation in natural resource management*. Island Press.



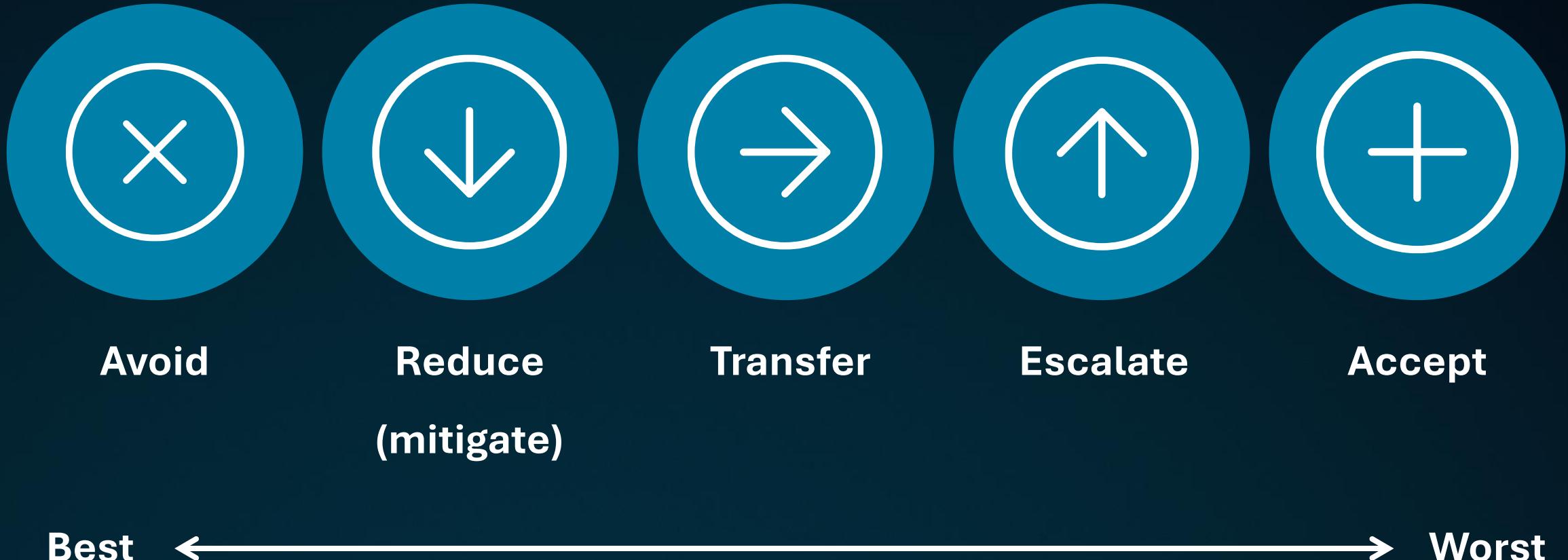
# Collaboration isn't magic

There are downsides and potential for misuse

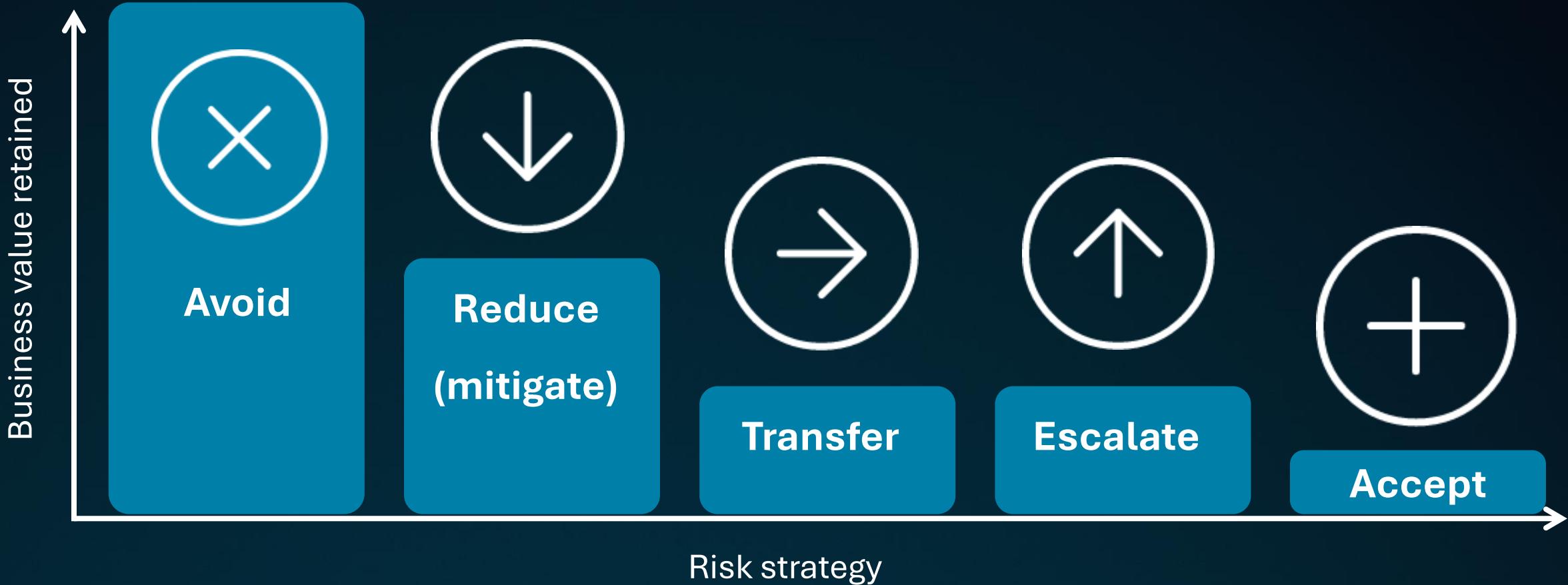
The benefits far outweigh any potential liabilities



# Planning risk responses



# Business value retained



# Denial

Not a valid response

Can be catastrophic



# Spike

A **spike** is a short time interval within a project, usually of fixed length, during which a team conducts research or prototypes an aspect of a solution to prove its viability.



# Spikes to explore and reduce risk

Spikes typically take less time than a standard iteration



## Short iterations

Allow us to check  
frequently and ensure our  
risk responses are working

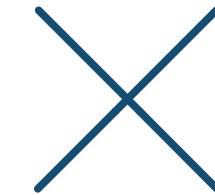


# Knowledge check

**True or false: Denial is a valid response to risk**



True



False

# Knowledge check

**True or false: Avoiding risk is preferable to accepting it**



True



False



# Prioritize impediment removal and risk mitigation activities

Section 3 of 5

# Risk-adjusted backlog

Risk response activities

Collaborative discussion

Reduces amount of risk



# Put risk responses into the team's backlog

Make sure risk responses  
are a regular part of the  
team's day-to-day work





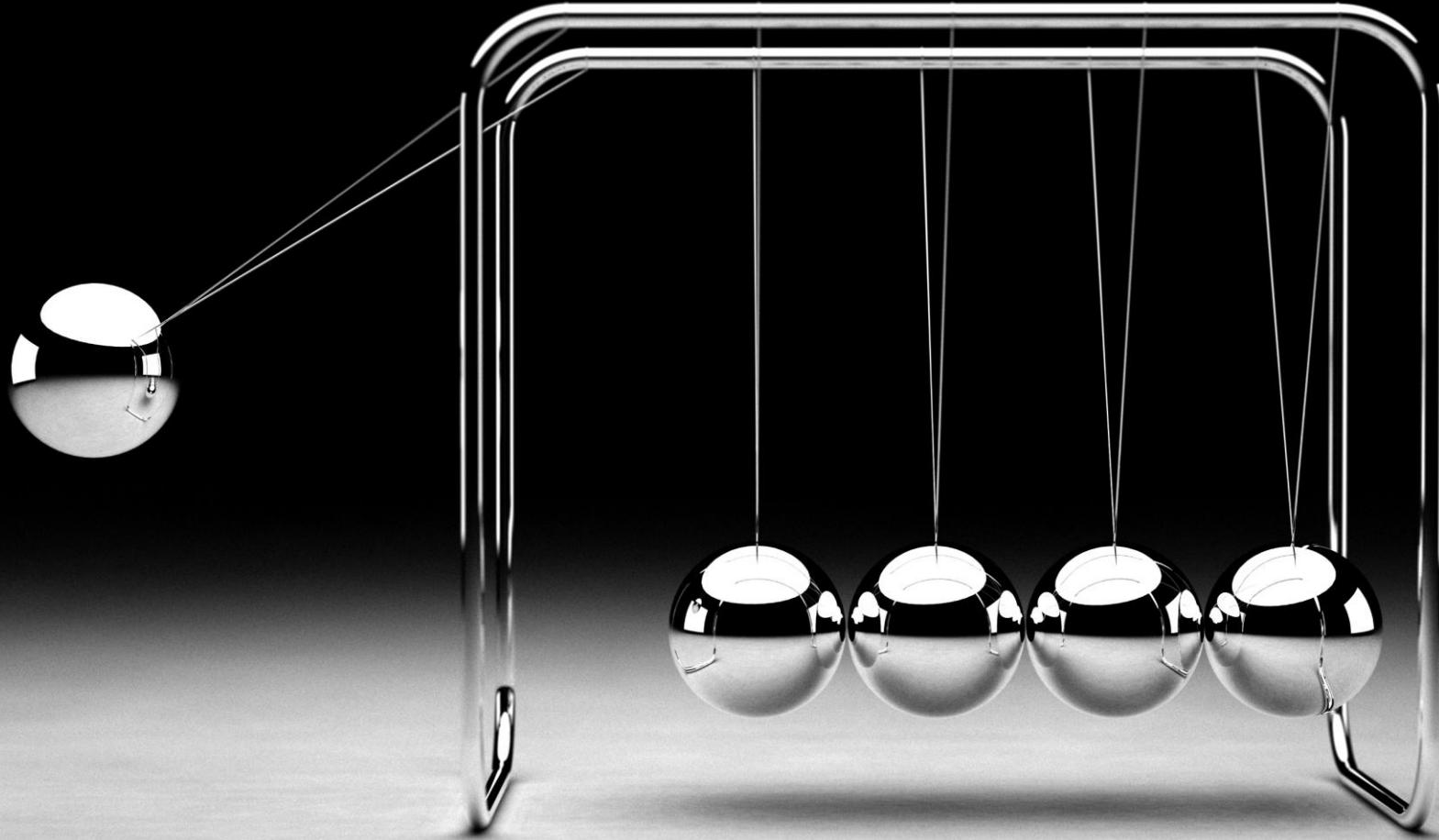
## Residual risk

Risk that remains after your risk responses have been implemented

Should be clearly identified, analyzed, documented, and communicated

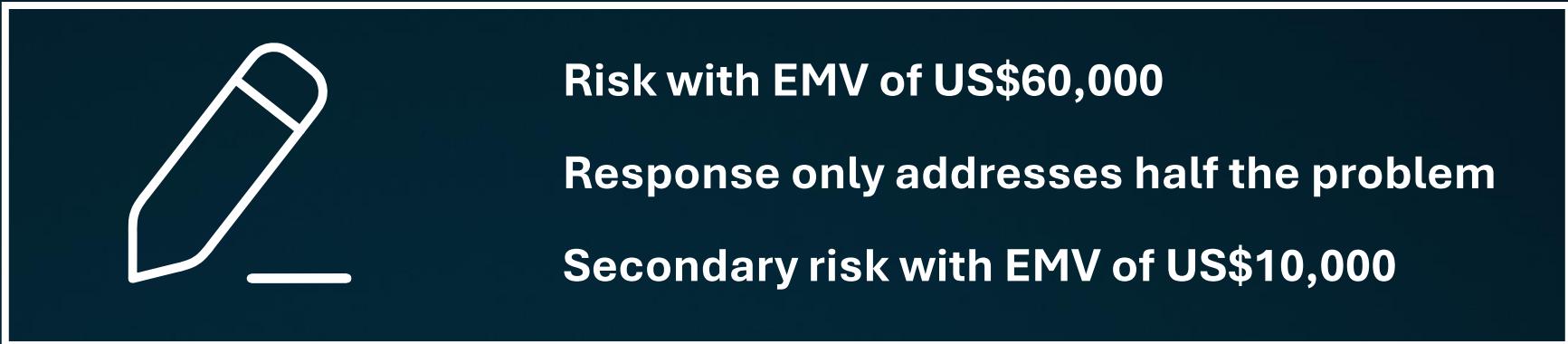
# Secondary risks

How do we account for the effect secondary risks have on the primary risks that triggered them?



# Adjusting the value of a risk response action

$$\text{Net EMV} = \text{EMV of residual risk} + \text{EMV of secondary risk}$$



$$\text{US\$60,000} \times 50\% = \text{US\$30,000}$$

$$\text{US\$30,000} + \text{US\$10,000} = \text{US\$40,000}$$

# Add to the risk-adjusted backlog

Feature	US\$50,000
Feature	US\$40,000
Feature	US\$30,000
Feature	US\$20,000
Risk response	US\$20,000
Feature	US\$5,000

**Repeat the process for each of the remaining risk responses**

A photograph showing a man and a woman in professional attire working together at a desk. The woman, wearing glasses and a white blazer, is seated and looking at a laptop screen. The man, wearing a dark blue shirt, is leaning over her shoulder, also looking at the screen and pointing at it with his right hand. They appear to be discussing something important. In the foreground, there is a small potted plant on the left and some papers on the desk. The background is slightly blurred.

## **Work with the product owner to create the risk-adjusted backlog**

Product owners rank the work based on its business value

That includes work undertaken to avoid, reduce, escalate, or transfer risk

# Knowledge check

## How do we prioritize impediment removal and risk mitigation activities ?

A. Discuss them in daily coordination meetings

B. Reach out to the product owner

**C. Insert them into the backlog**

D. Poll relevant stakeholders

**The correct answer is [insert them into the backlog](#). By doing so, we make sure our risk responses are not supplemental activities but a regular part of the team's day-to-day work.**

# Knowledge check

How do we account for the effect secondary risks have on the primary risks that triggered them?

- A. Add the response to the risk-adjusted backlog
- B. Estimate the net expected monetary value**
- C. Work with the product owner
- D. Identify, analyze, document, and communicate residual risk

The correct answer is **estimate the net expected monetary value.**





# Monitor/control risks and impediments

**Section 4 of 5**

# Risk retrospectives

A team review of the project risks identified and risk management processes used



# How does the team use this meeting?



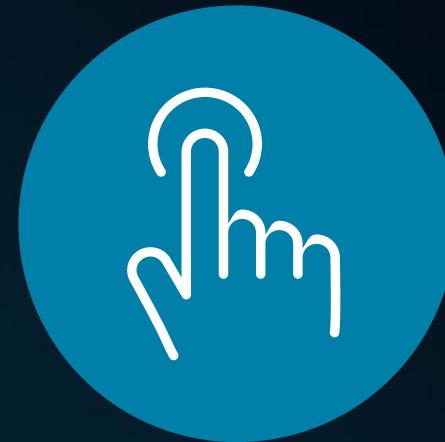
**Still active?**



**Changes to  
probability, impact,  
or urgency**



**Effectiveness of  
risk responses**



**Identify new risks;  
close those no  
longer active**

# Risk retrospective questions

98

Are we eliminating or reducing our risks?

Do we have any new or increasing risks?

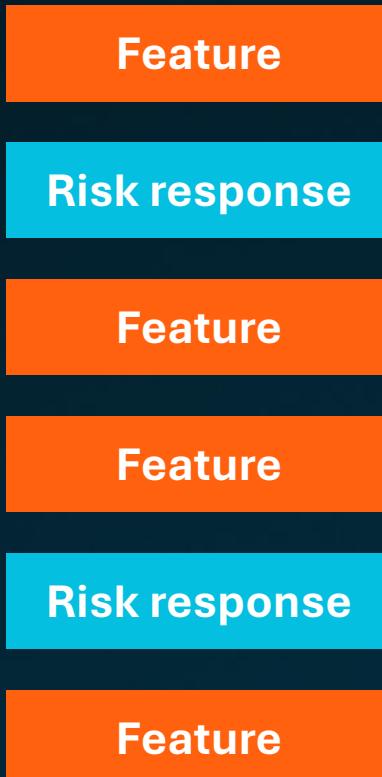
What are the root causes of our risks, and can we eliminate any of them?

Which risk strategies are working, and which are not?

For risks that we chose to transfer or escalate,  
how are the third parties managing them?

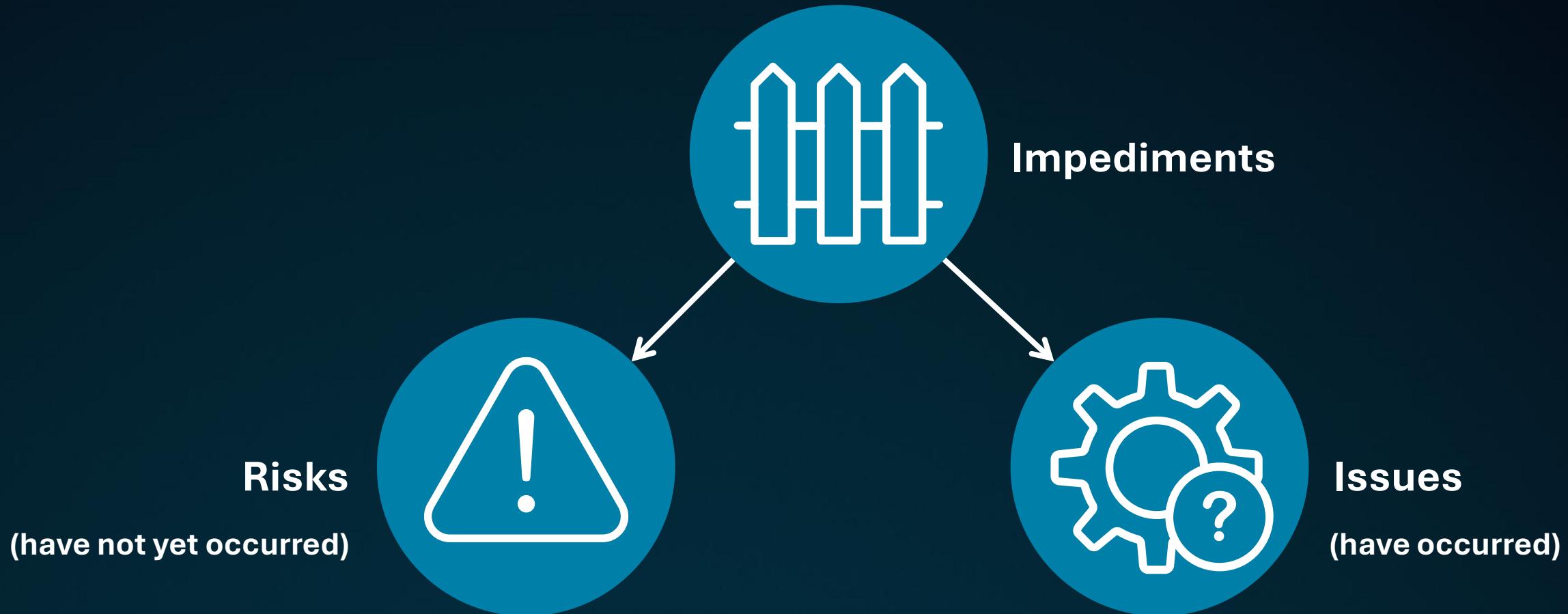
How are our team risk management capabilities developing?

# Reprioritize the backlog



**The product owner should  
use the results of your risk  
retrospective to  
reprioritize the backlog**

# Impediments raised at daily coordination meetings

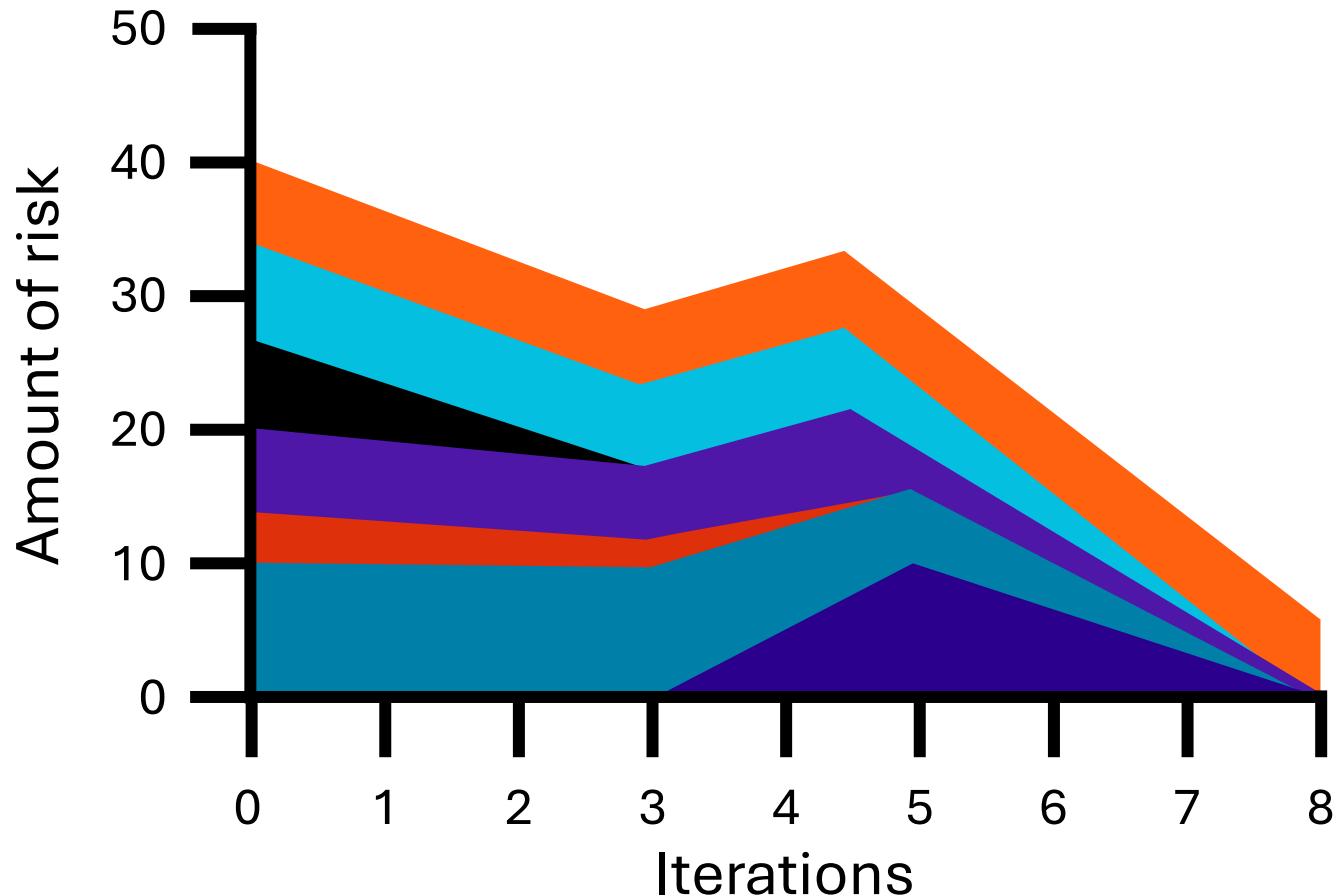


# Visualizing risks

One tool that can help  
make sense of all this data  
is a risk burndown graph



# What is a risk burndown graph?



- Chart that shows the cumulative risk over time.
- Effectively visualizes the cumulative risk.
- Severity of risk.
- Risk 1
- Risk 2
- Risk 3
- Risk 4
- Risk 5
- Risk 6
- Risk 7

# Risk management should be a team activity

We want risk management activities to be part of the day-to-day activities of a larger pool of project stakeholders



# Knowledge check

**True or false: Issues are risks that have already happened**



True



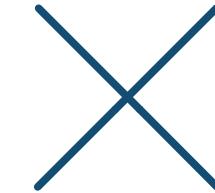
False

# Knowledge check

**True or false: Risk retrospectives should be held at the end of the project**



True



False



# Use lessons learned to avoid risks/impediments recurrence

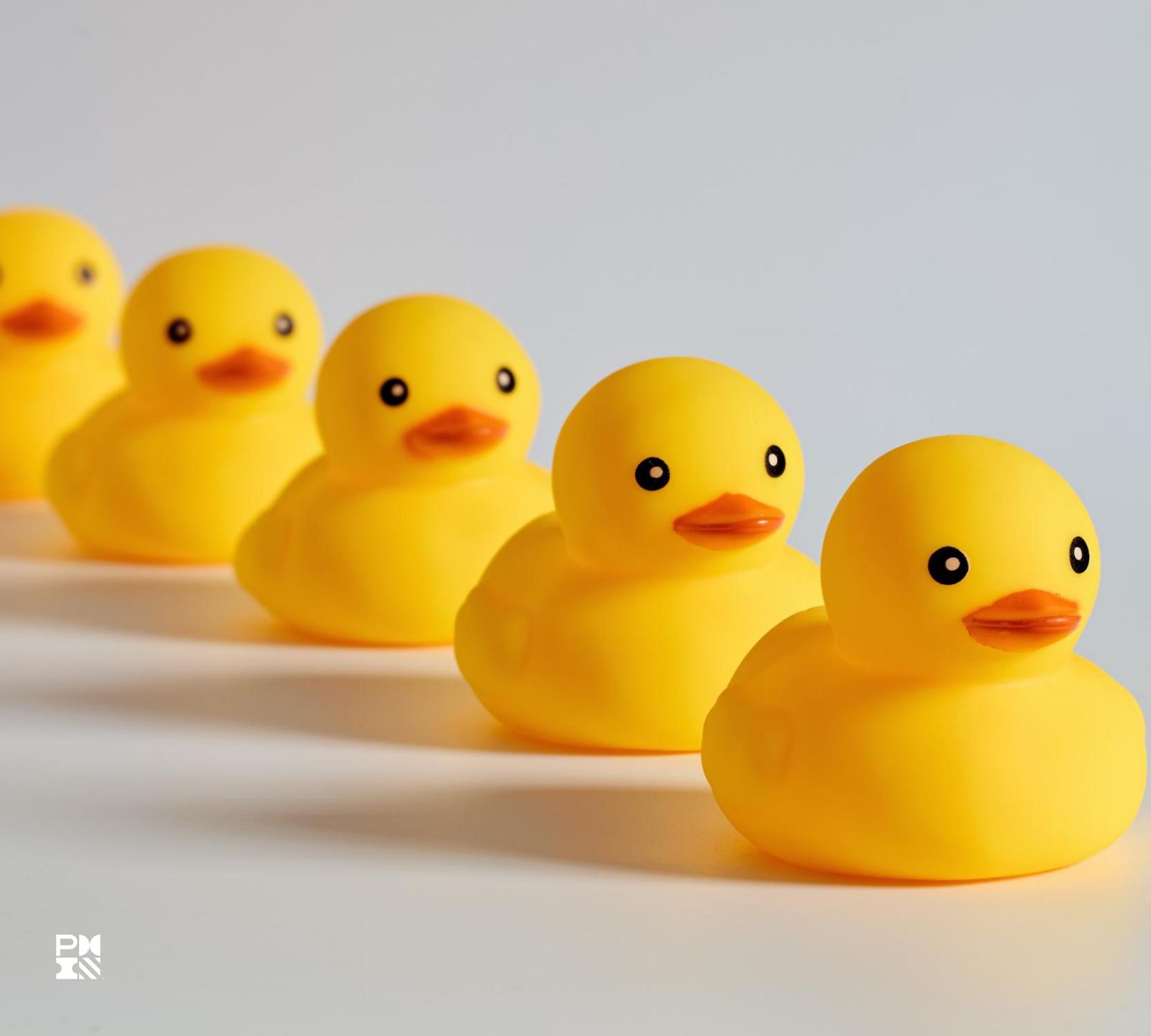
## Section 5 of 5

# Lessons learned



**Lessons learned** is the knowledge gained during a project, which shows how project events were addressed or should be addressed in the future, for the purpose of improving future performance.





## Use lessons learned to avoid recurrence

If another team has faced and overcome a similar risk in the past, we may be able to use their strategy to overcome our own risks

# Review lessons learned from similar and parallel projects

Past similar or parallel projects may have solved risks your project faces



A photograph of a young woman with long brown hair, wearing a light-colored striped blouse, sitting at a table in what appears to be a conference room or office. She is looking towards the right side of the frame and has her right hand raised with fingers spread, as if she is asking a question or responding to someone. On the table in front of her are some papers and a small notebook. A man's back is visible to the right, suggesting he is the one being addressed. The background shows large windows with a view of green trees.

## Ask team for solutions

Their responses may provide a sort of tacit lessons learned

# Use communities of practice

Comes together to learn from each other and develop their skills and knowledge

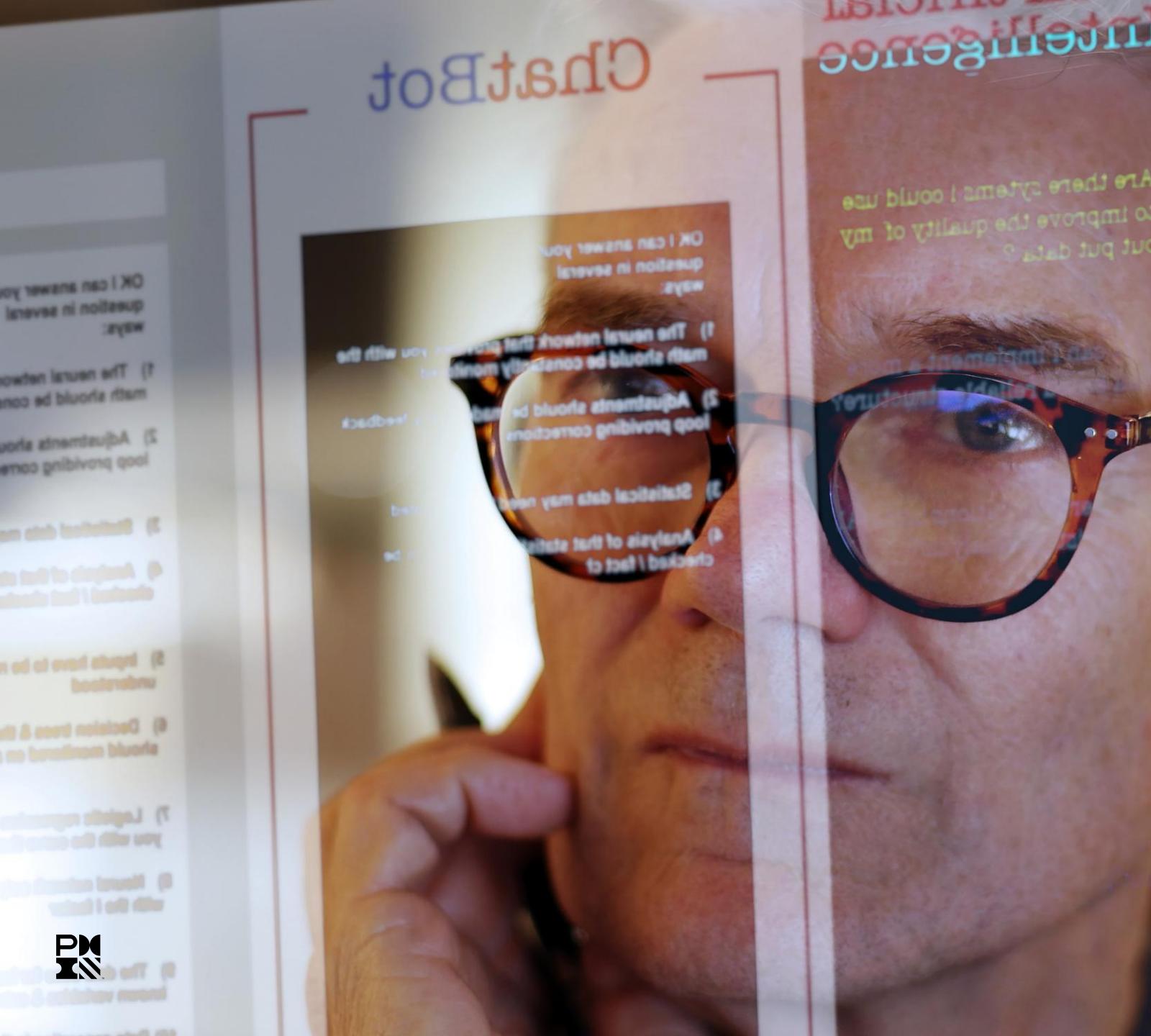
Can be ideal places to share and understand lessons learned



# Artificial intelligence

You can ask an AI chatbot to find potential risks and lessons learned that are pertinent to your domain

Be careful about the information you share with a chatbot



## What are lessons learned?

- A. Problems from prior projects
- B. Problems faced by another team
- C. A way to develop your team's skills and knowledge
- D. The knowledge gained during a project**

**Lessons learned are the knowledge gained during a project, which shows how project events were addressed or should be addressed in the future, for the purpose of improving future performance.**



**Visualize the end-to-end flow of value in the system**



**Use metrics, tools, and feedback loops to identify waste**



**Prioritize waste-reduction activities**



**Iterate on identification and reduction of waste**



**Seek early feedback**



**Manage agile metrics**



**Manage impediments and risk**



**Recognize and eliminate waste**



**Perform continuous improvements**



**Engage customers**



**Optimize flow**



# Visualize the end-to-end flow of value in the system

Section 1 of 4

# Definitions

**Value-added time** is the time during the cycle that value is being added.

**Non-value-added time** is all the rest of the cycle, during which we find delays, waste, and constraints.

**Total cycle time** is the sum of a process's value-added and nonvalue-added times.

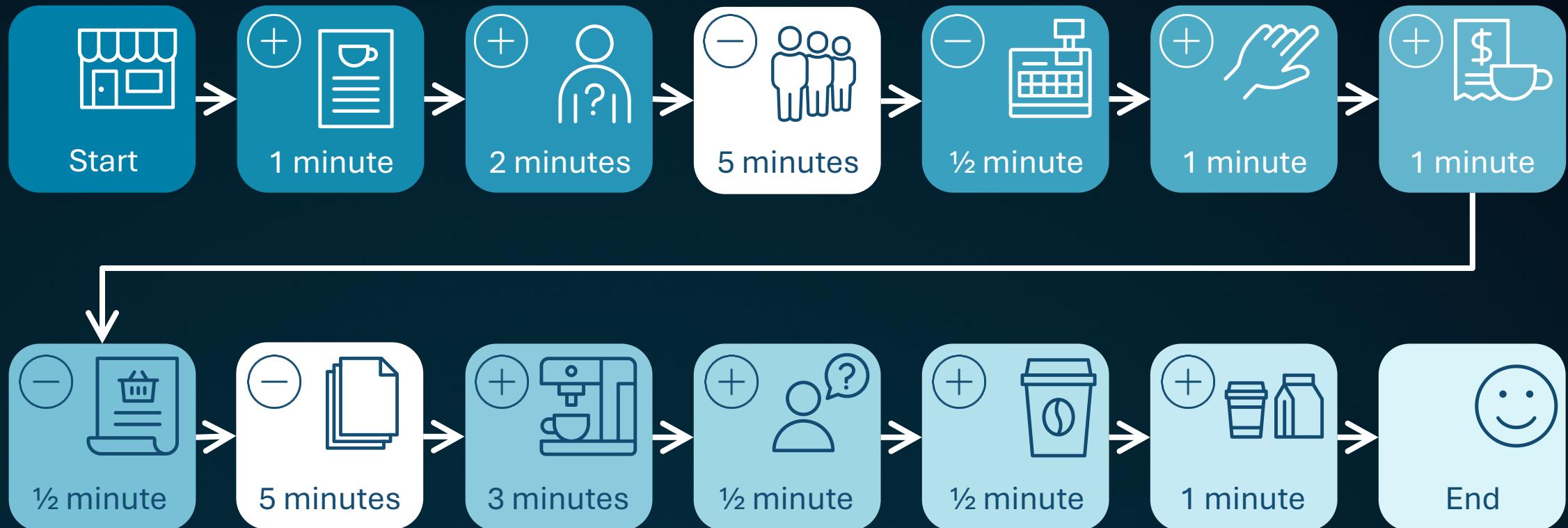
# Identify steps and queues in the process



# Estimate time for each step



# Value-added or non-value-added?



# Process efficiency

$$\text{Process efficiency} = \frac{\text{Value-added time}}{\text{Total cycle time}}$$



$$10 \text{ minutes} \div 21 \text{ minutes} = 48\%$$

# Optimizing the process

We need to reduce or,  
if possible, eliminate  
wait times and loopbacks



# Developing an app



This won't eliminate people wandering into the coffee shop and ordering something in person

It should significantly reduce the wait to order and pay for a drink

# App value stream



# App process efficiency

<b>Value-added time:</b>	<b>8 minutes</b>
<b>Non-value-added time:</b>	<b>3 minutes</b>
<b>Total cycle time:</b>	<b>11 minutes</b>

$$8 \text{ minutes} \div 11 \text{ minutes} = 73\%$$



# Use metrics, tools, and feedback loops to identify waste

Section 2 of 4

# Metrics considerations



Fit for purpose



Specific



Aligned



Consistent



Actionable



Timely

# Useful metrics categories



Queue length



Work in progress



Throughput



Process efficiency

A photograph showing a queue of approximately ten people waiting outside a large, light-colored building with many doors. The people are standing on a cobblestone street, some looking at the building or talking. A street lamp is visible on the left. The building has a grid pattern of doors.

# Queue length

Can provide insight into  
the amount of work in  
progress and the rate of  
work completion

- Cycle time
- Lead time
- Queue time
- Batch size

# Work in progress

The amount of work currently being worked on that has not been completed

- Estimate at completion (EAC)
- Ratio of story points completed to the total story points planned





# Throughput

The rate at which the team can complete work items over a given period

- Features complete versus features remaining
- Velocity

# Process efficiency

The team's ability to deliver value to the customer while minimizing waste and maximizing productivity

- Cycle time
- Lead time
- Velocity



# Tools



**Value stream  
mapping**

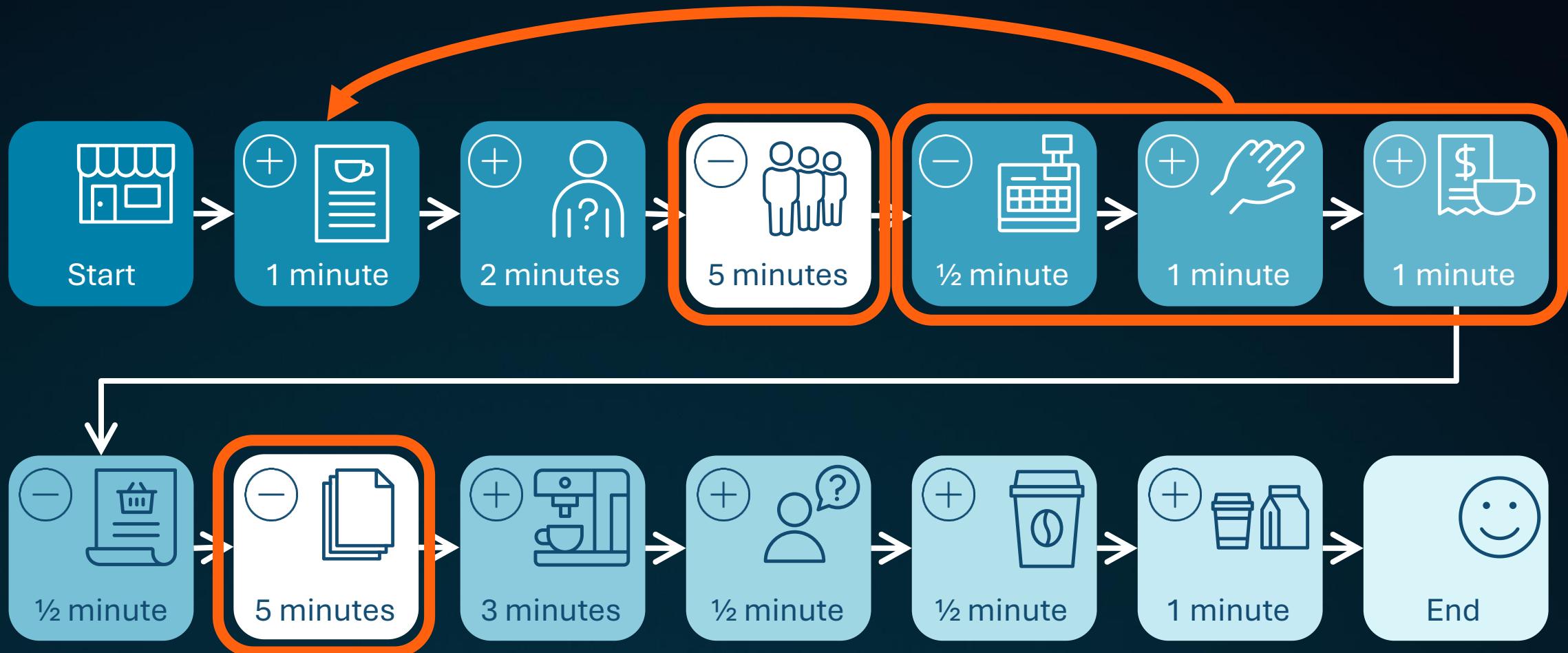


**Theory of  
constraints**



**Cumulative flow  
diagram analysis**

# Value stream map analysis



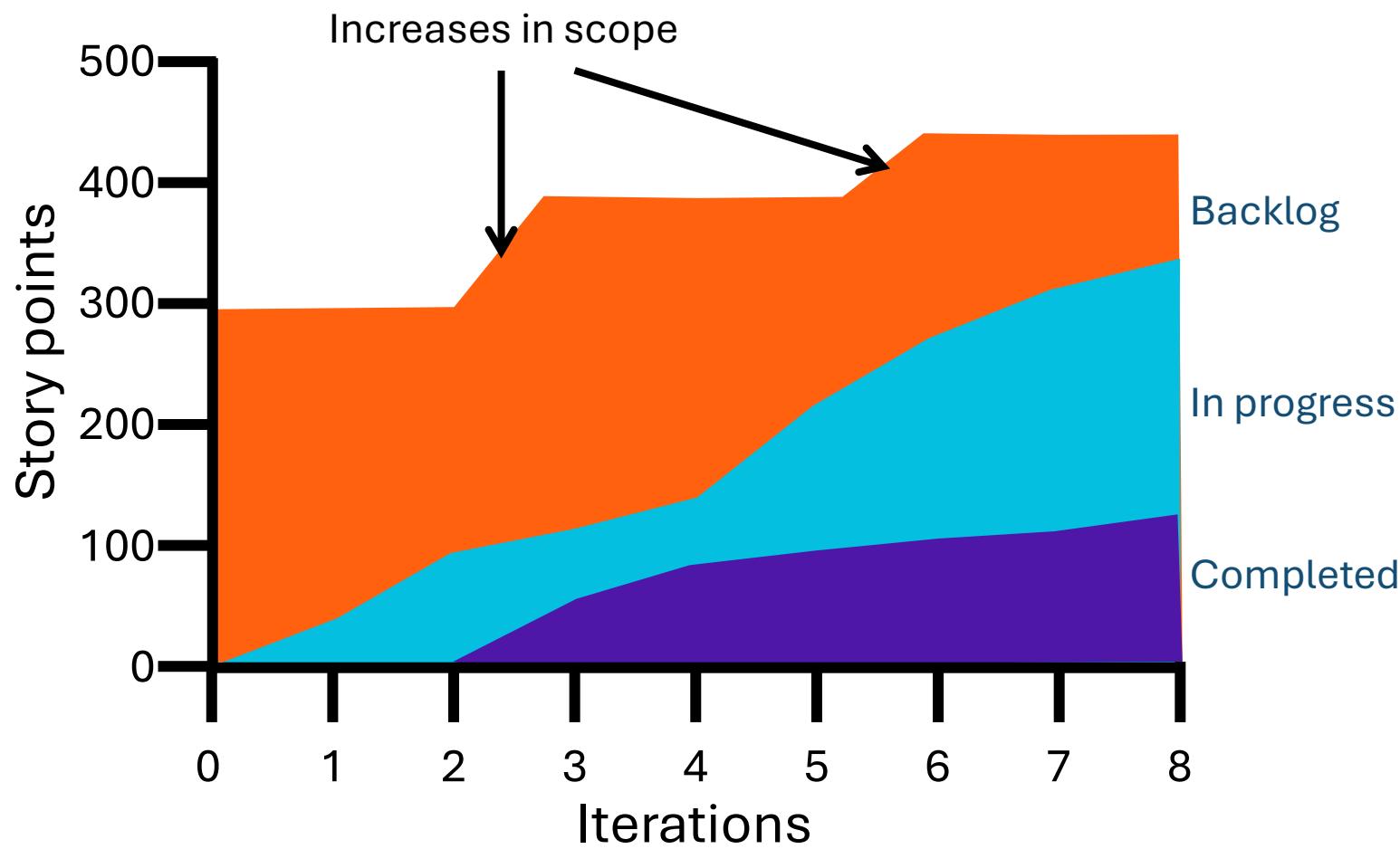
# Theory of constraints

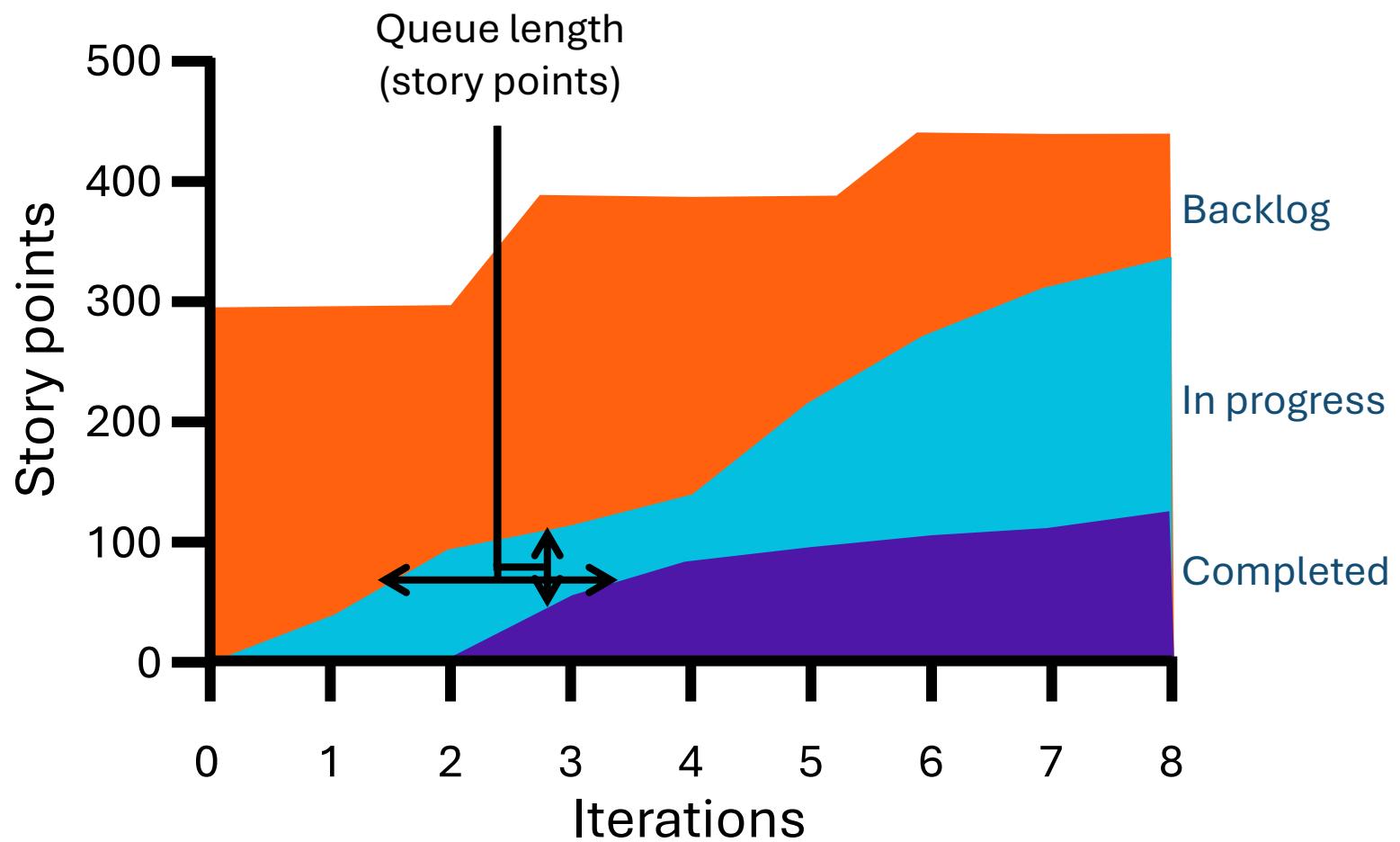
Throughput can only be improved when the constraint is improved

Spending time optimizing nonconstraints will not provide significant benefits



# Cumulative flow diagrams: Increases in scope



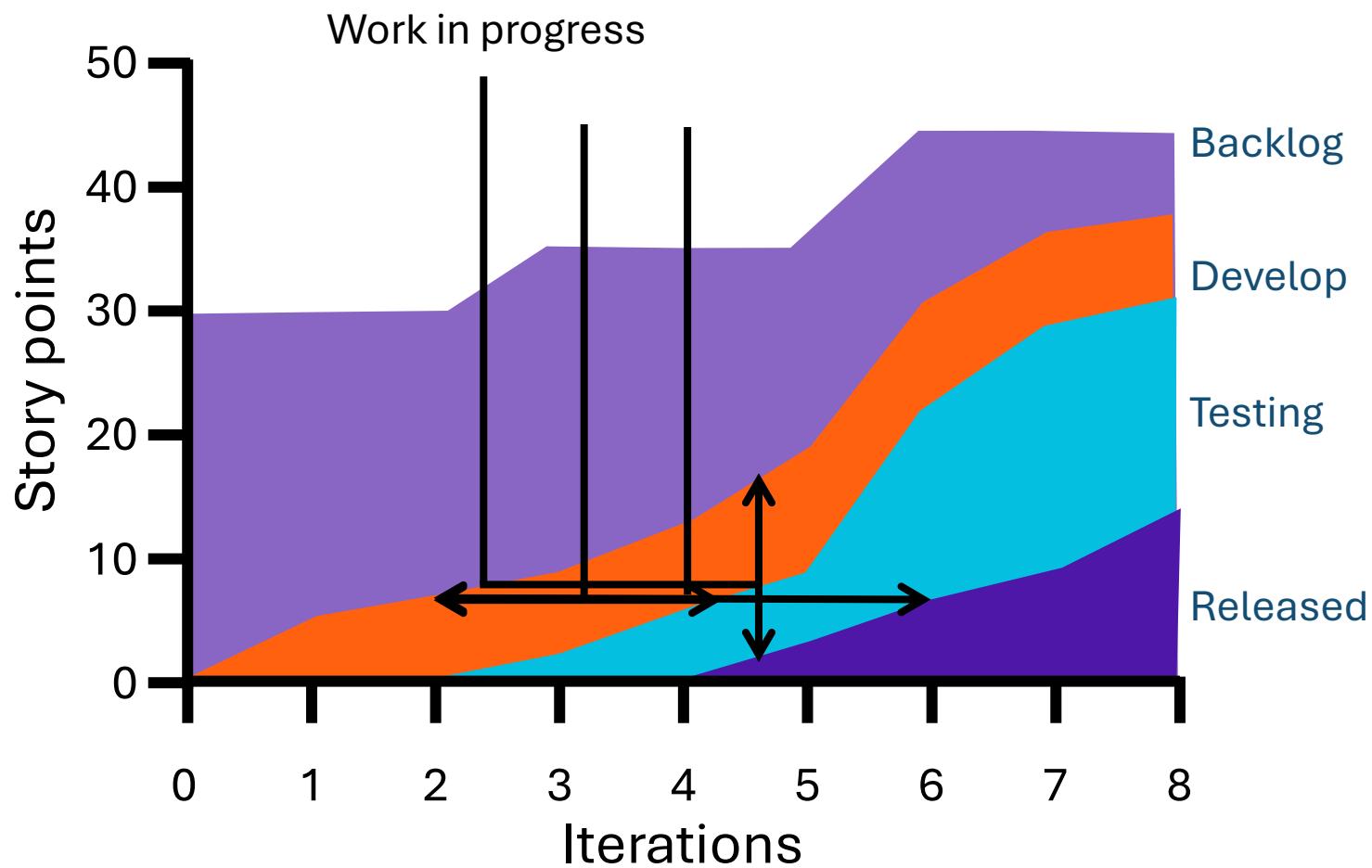


## Cumulative flow diagrams:

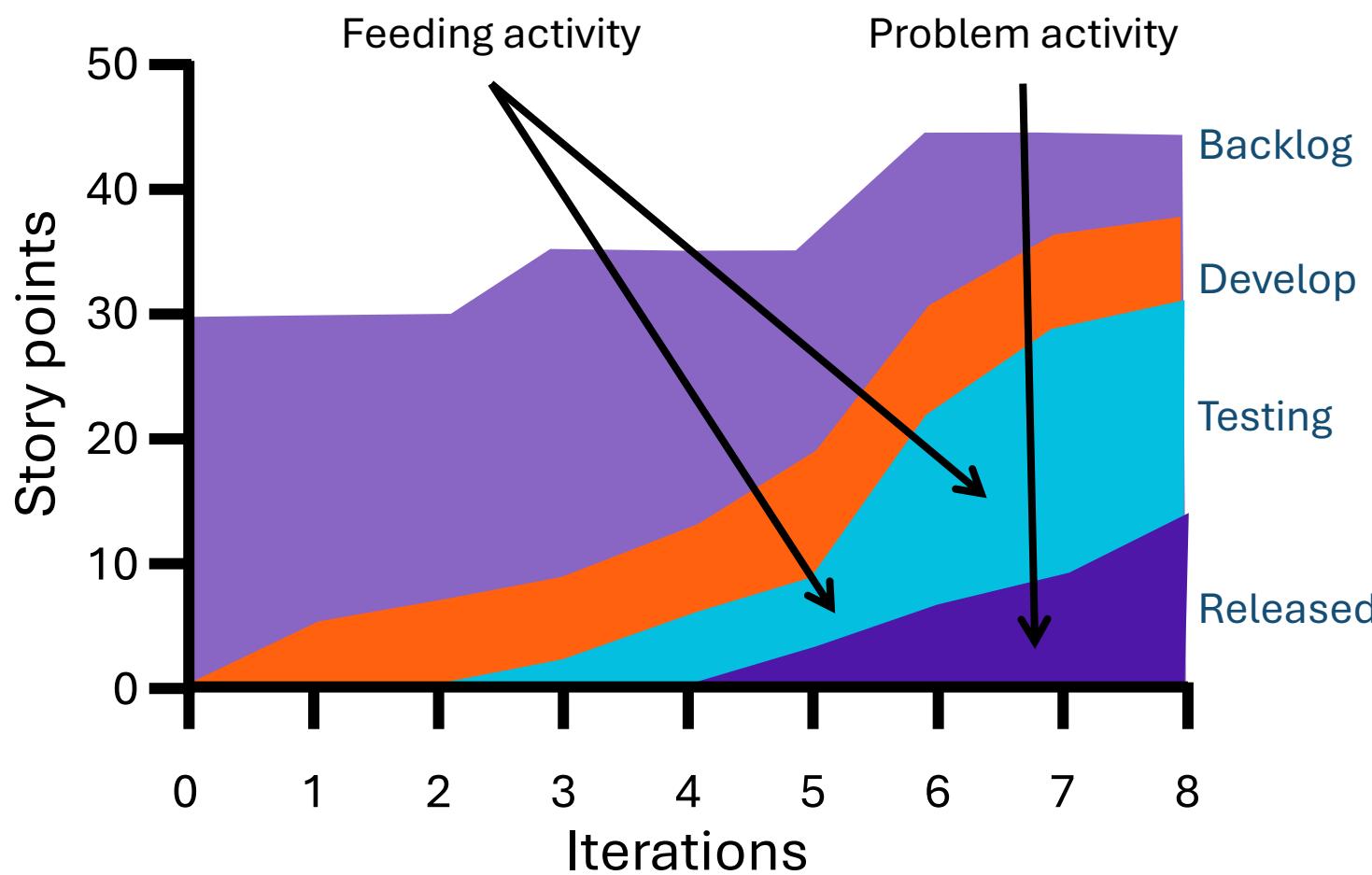
### Queue duration and length

Little's Law: A mathematical formula from queuing theory that proves the duration of a work queue is dependent on its size

# Cumulative flow diagrams: Lead time, cycle time, and work in progress



# Using a cumulative flow diagram to identify a bottleneck



# Knowledge check

**True or false: Queue length can provide insight into the amount of work in progress and the rate of work completion**



True



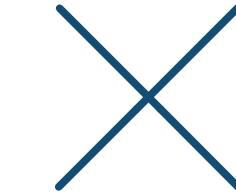
False

# Knowledge check

**True or false: According to the theory of constraints, spending time optimizing nonconstraints can still provide significant benefits**



True



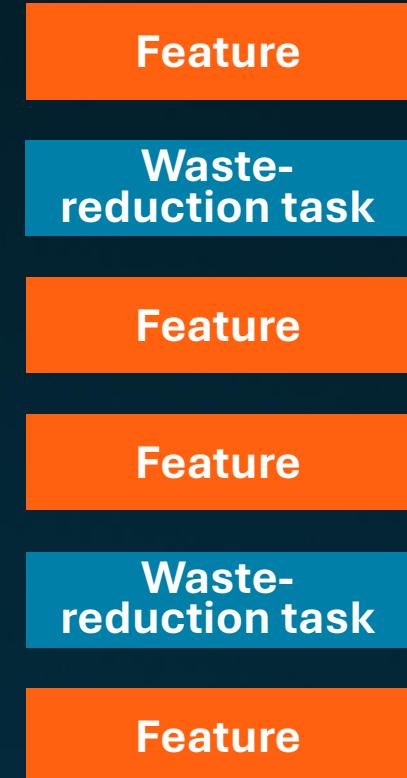
False



# Prioritize waste-reduction activities

Section 3 of 4

# Putting waste-reduction tasks in the backlog



**How do we put a value on  
waste-reduction tasks  
so the product owner  
can prioritize them?**

# Estimating the value of waste-reduction tasks



Determine the  
total value of  
the waste



Calculate the  
potential savings



Calculate the  
return on  
investment



Prioritize  
the task

# Work with the product owner to set priorities

You may need to explain why waste-reduction activities are important



# Team selects and works on waste-reduction activities



## Review the results

If it was effective, the team moves on to the next task

If it was not, more work may be necessary



# Knowledge check

## How do you estimate the value of a waste-reduction task?

- A. Calculate the return on investment, determine the total value of the waste, calculate the potential savings, prioritize the task, calculate the return on investment
- B. Determine the total value of the waste, calculate the potential savings, calculate the return on investment, prioritize the task**
- C. Calculate the potential savings, prioritize the task, calculate the return on investment, determine the total value of the waste

**To estimate the value of a waste-reduction task, you first determine the total value of the waste, then calculate the potential savings, then calculate the return on investment, and finally prioritize the task based on the estimated return on investment**



# Iterate on identification and reduction of waste

Section 4 of 4

# Theory of constraints

Provides precise and sustained focus on improving the current constraint

Once the constraint is improved, all that focus moves to the next constraint



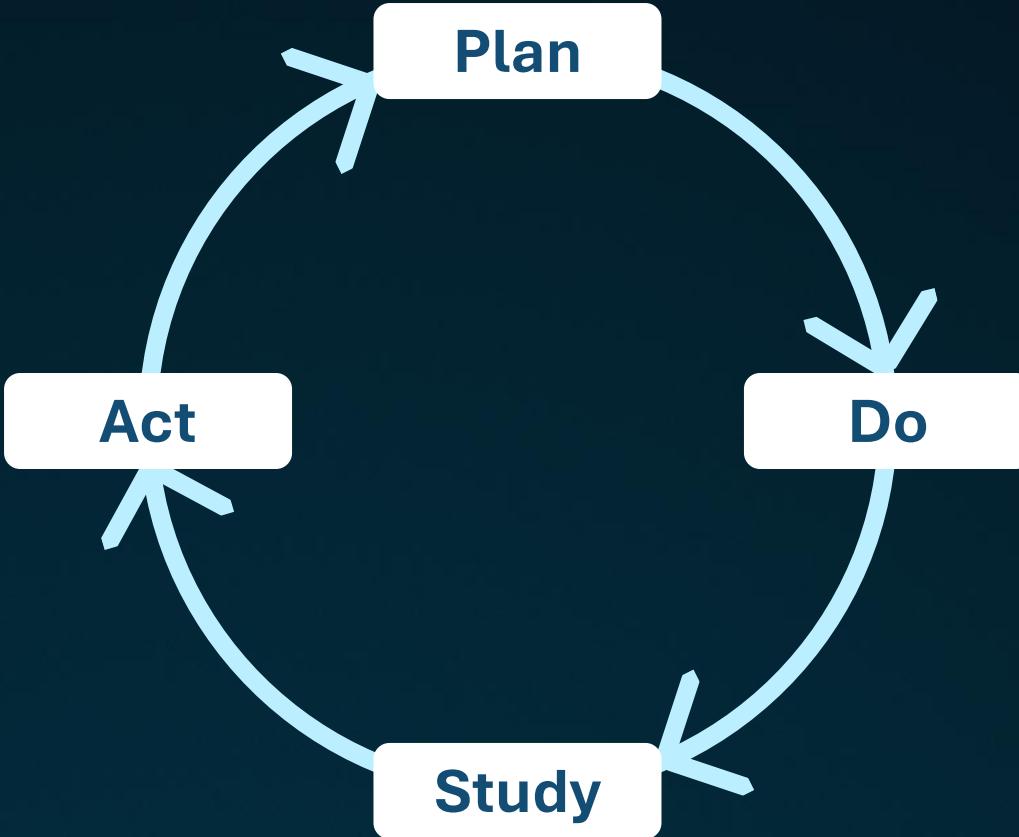


## Quality loop

Expose the next weakest link in the chain, strengthen it, and move to the next one

Don't let inertia become a constraint to improvement

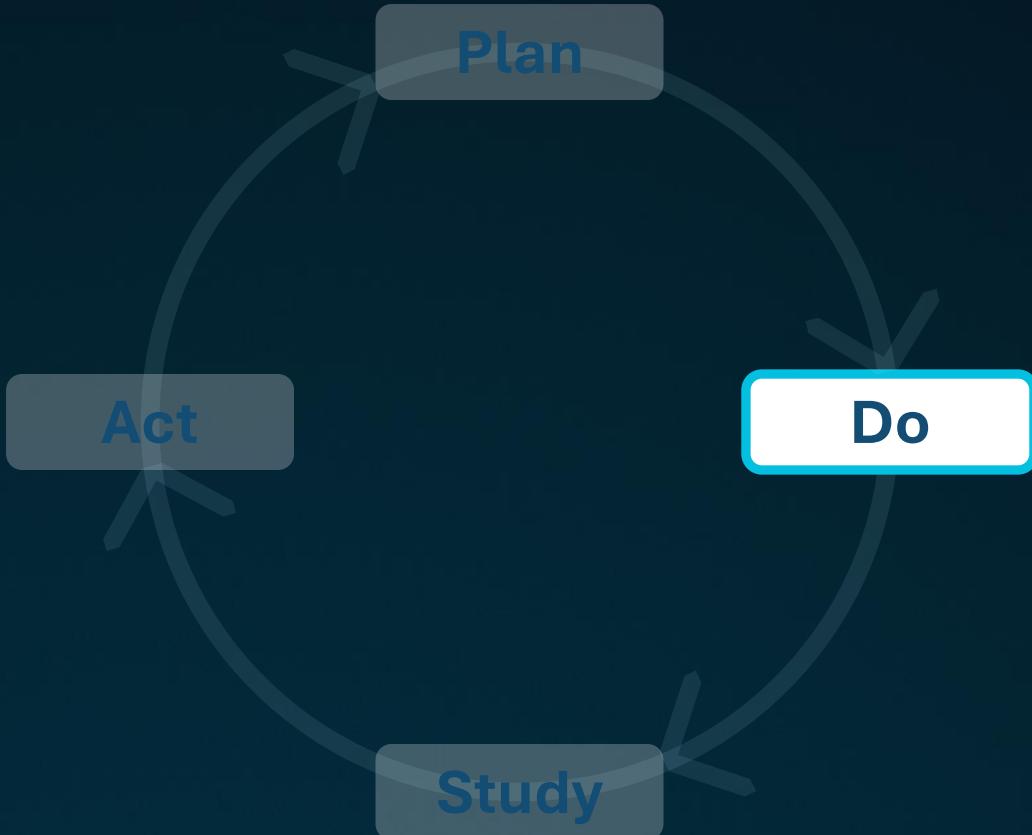
# Deming Cycle



# Deming Cycle: Plan



# Deming Cycle: Do



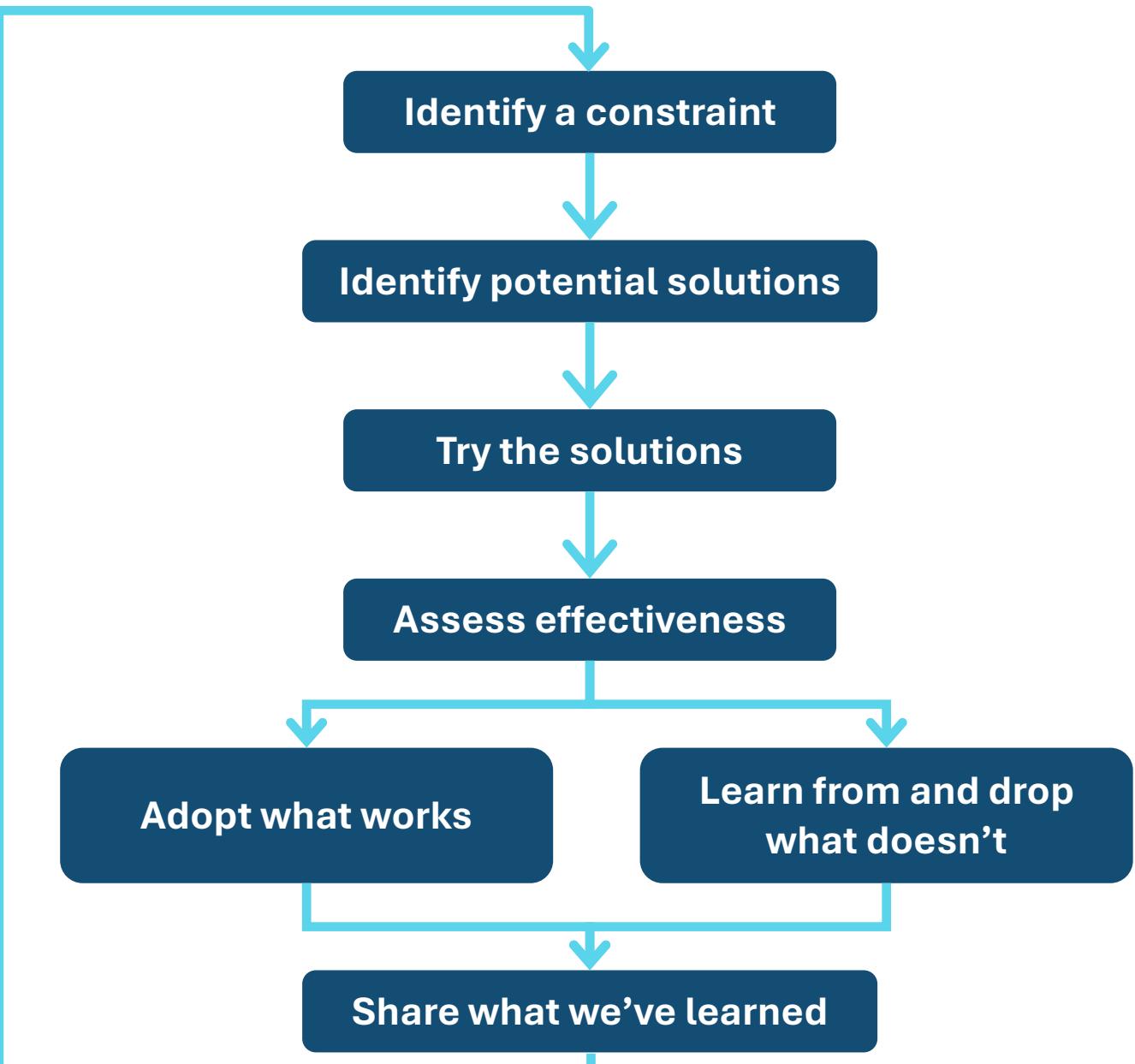
# Deming Cycle: Study



# Deming Cycle: Act



# Improving constraints through experiments

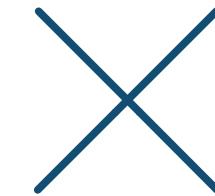


# Knowledge check

**True or false: In Deming's PDSA Cycle, the letters stand for prepare, do, study, and act**



True



False

# Knowledge check

**True or false: The theory of constraints provides precise and sustained focus on improving the current constraint**



True



False

# DAILY PMP BOOTCAMP SURVEY



LOOK FOR THE SURVEY LINK IN THE CHAT

- Our goal is to provide the best possible Bootcamp experience for a live streaming webinar, with hundreds of participants.
- For each Bootcamp session,
  - Let us know **what you liked** about the experience – your comments really matter.
  - Please include a thank you **to the mentor(s)** working off camera.
  - If you have **recommendations**, share those too!

We sincerely value your opinion!

# Survey Scale

- This Scale: 0 not at all likely- 10 extremely likely



On a scale of 0-10, how likely are you to recommend this bootcamp to someone else?

This Scale: 0 not at all likely - 10 extremely likely

0	1	2	3	4	5	6	7	8	9	10
<input type="radio"/>										