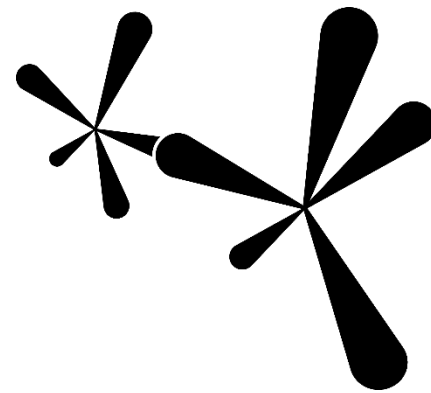


RIPL 2020

A Prescription for
Achieving Faster, Better
and Cheaper Library
Processes



**ARAPAHOE
LIBRARIES**

Jane Martel
12.15.2020

My hopes



Inspire you to use what you learn

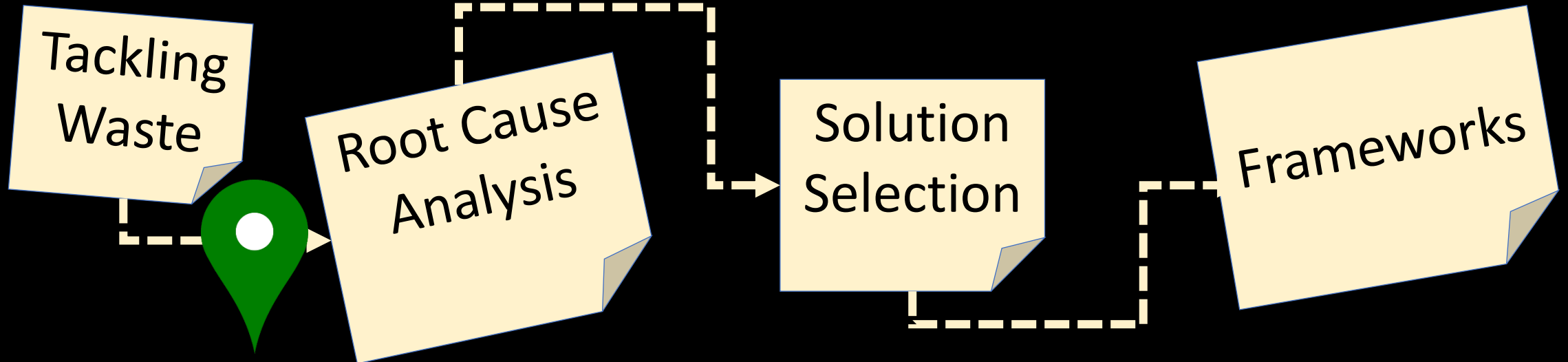
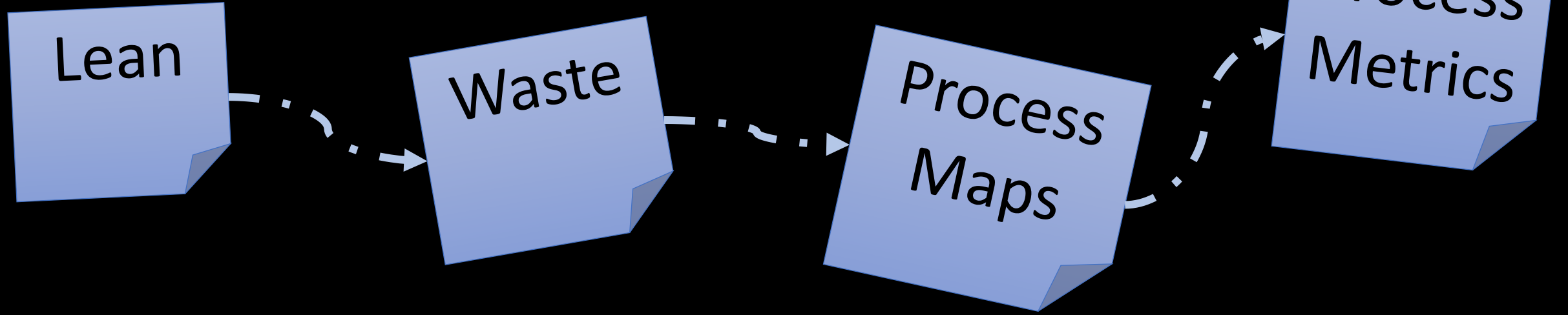


Involve you in learning so you remember

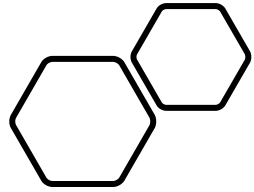


Equip you to enable you to do it yourself

DIAGNOSING

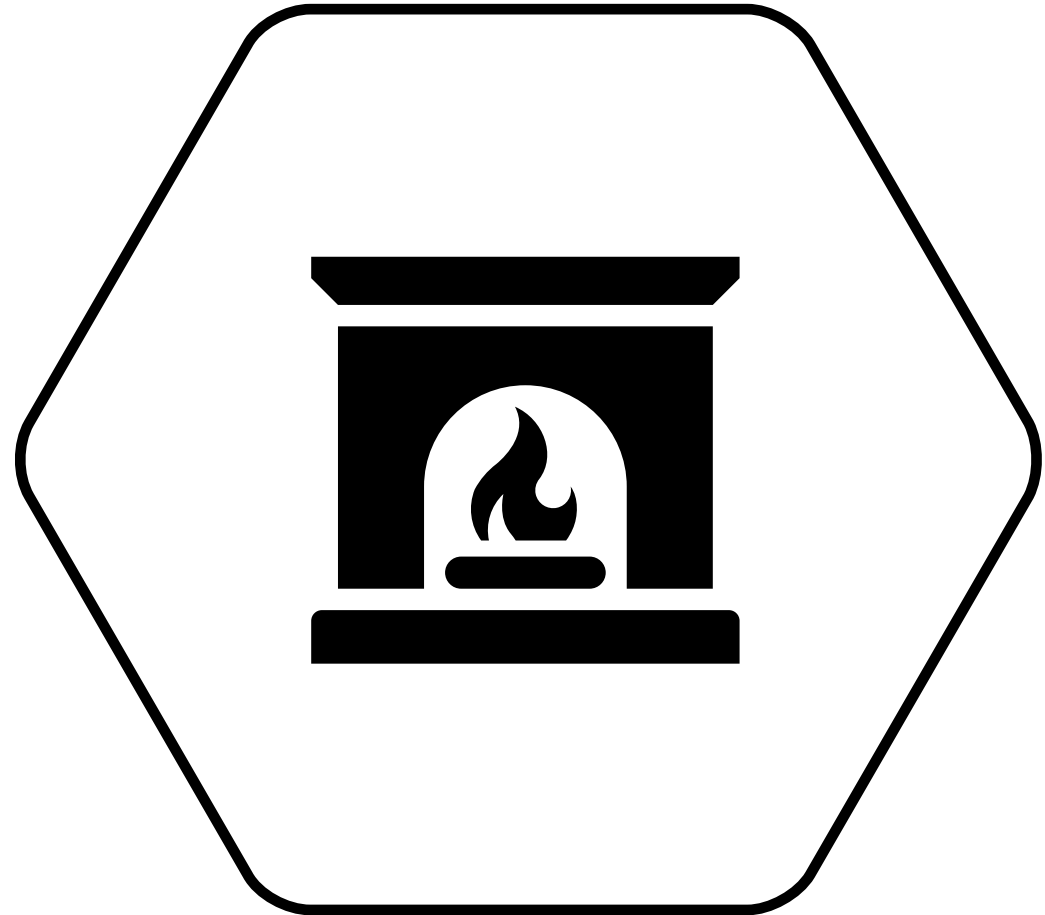


FIXING



In chat, write one thing that struck you from the recorded sessions on how to tackle waste.

Warm Up



Tell us about your mistake-proofing endeavor.

- Breakout rooms for three people
- Six minutes
- What did you do?
- How did it go?

A Prescription for Achieving Faster, Better and Cheaper Library Processes

Instructions for activity between the pre-recorded and live session

Rework (defects) is one of the eight wastes and mistake proofing is one way to address this waste.

1. Using the information on <https://leanmethods.com/wp-content/uploads/2017/12/mistake-proofing-techniques.pdf>, apply the mistake-proofing concept to a process that you “own” at work.

If you are not authorized to make such changes, schedule a meeting to talk about your ideas with the person who is.

2. Be prepared to share the results of your efforts with a small group at the live session on December 15, 2020.

What is Lean?

“...a way to do more with less –
less human effort, less equipment,
less time and less space –
while coming closer to providing
exactly what the customers want”

J.P. Womack

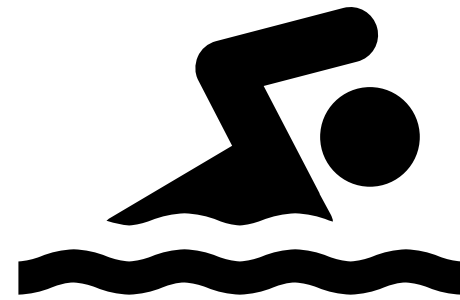
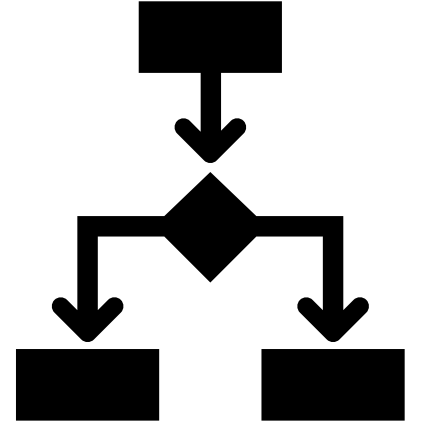
Most processes are ~85% waste.

- **W**aiting
- **O**ver production
- **R**ejects/rework (defects)
- **M**otion
- over **P**rocessing
- **I**nventory
- **I**ntellect
- **T**ransportation



Process Mapping

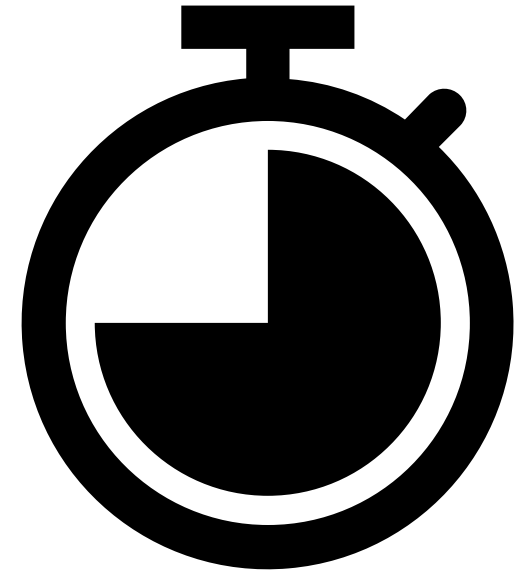
- Spaghetti Maps
- Flowcharts
- Swim Lane/Cross-functional Maps



Process Metrics Review

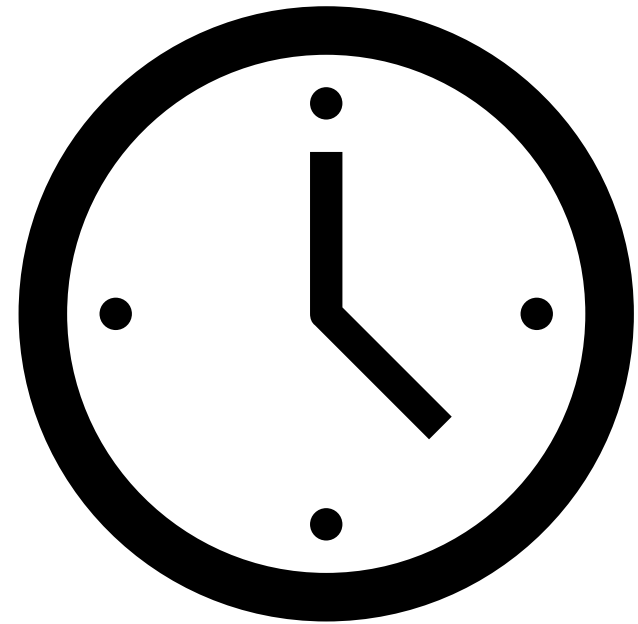
1. Cycle Time

The time it takes to perform one step of a process

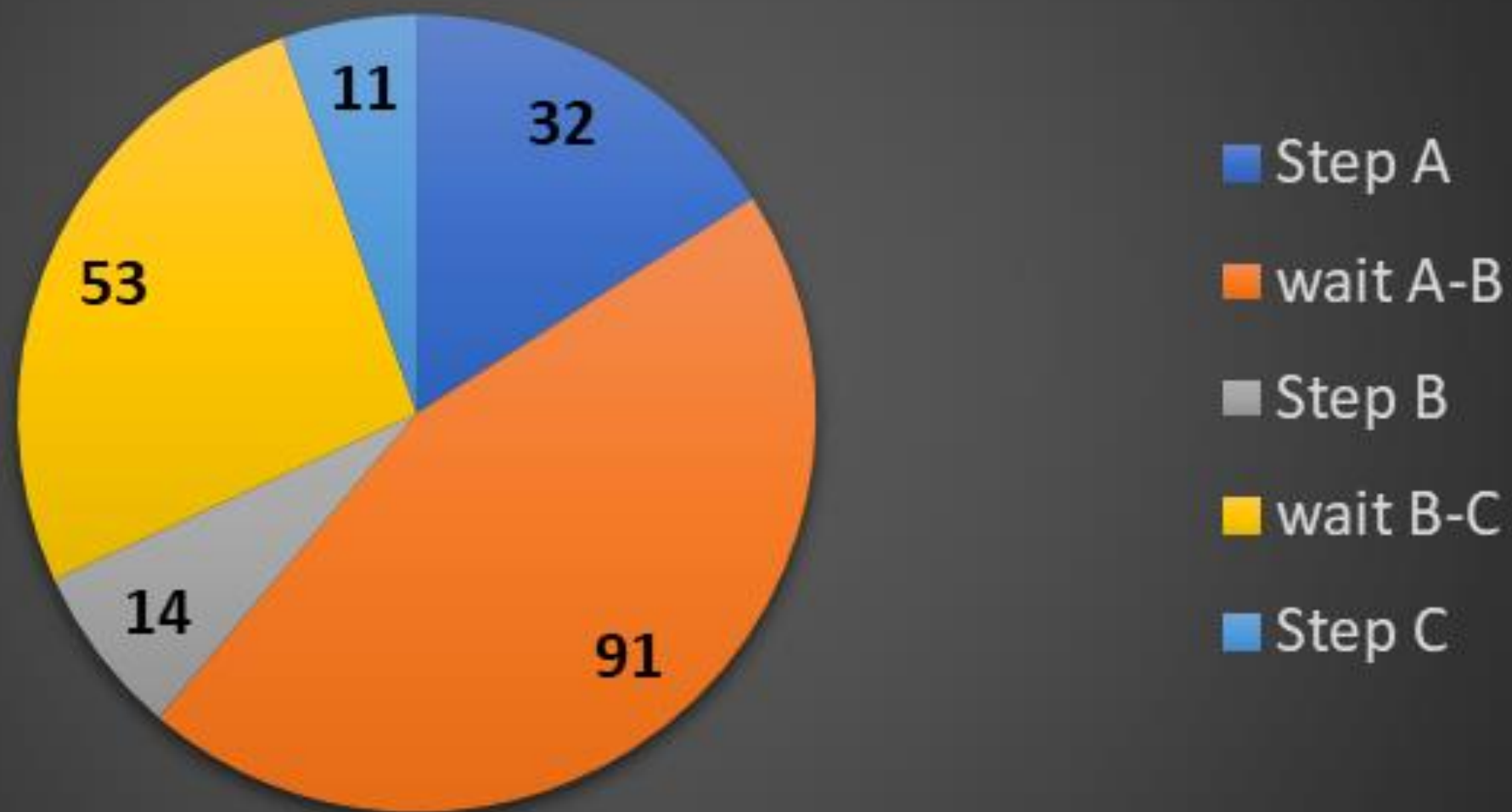


2. Lead Time

The time it takes to perform the whole process, including wait time, from order to delivery to customer

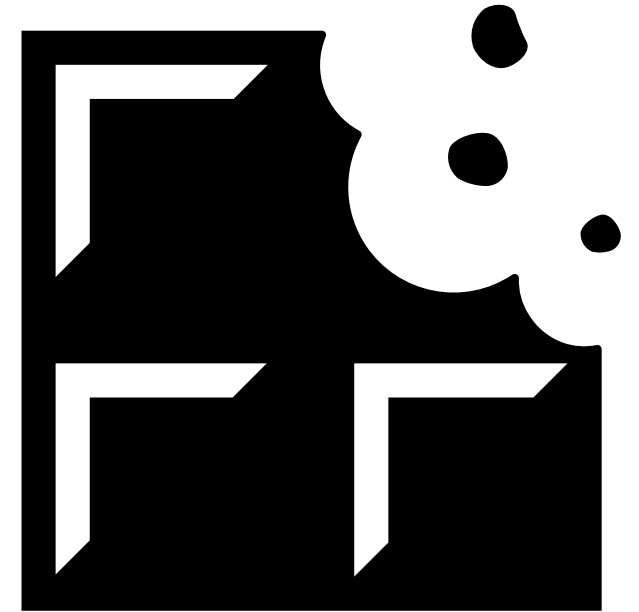


Cycle Times + Wait Times = Lead Time



3. Value-added Time (VAT)

Value-added time ÷ Lead time



4. Yield

Percent of work units that make it through the process defect-free





You have analyzed
your process and you
have a diagnosis.

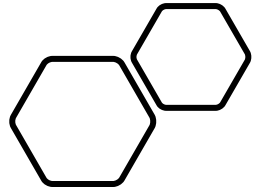


Ready to move
on?

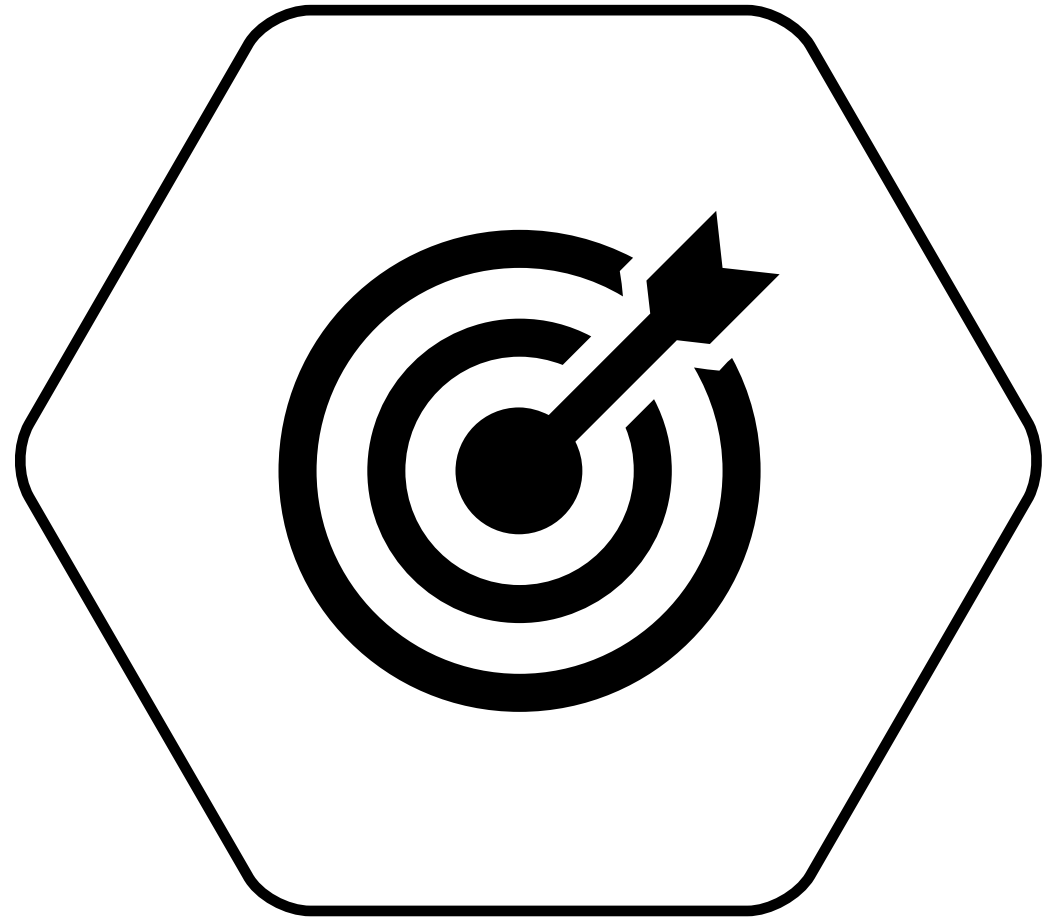


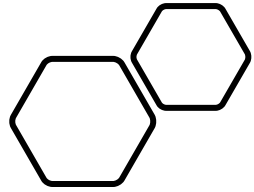


Now where are you going and how will you get there? It's time for a prescription.



Aim for a 70%
improvement



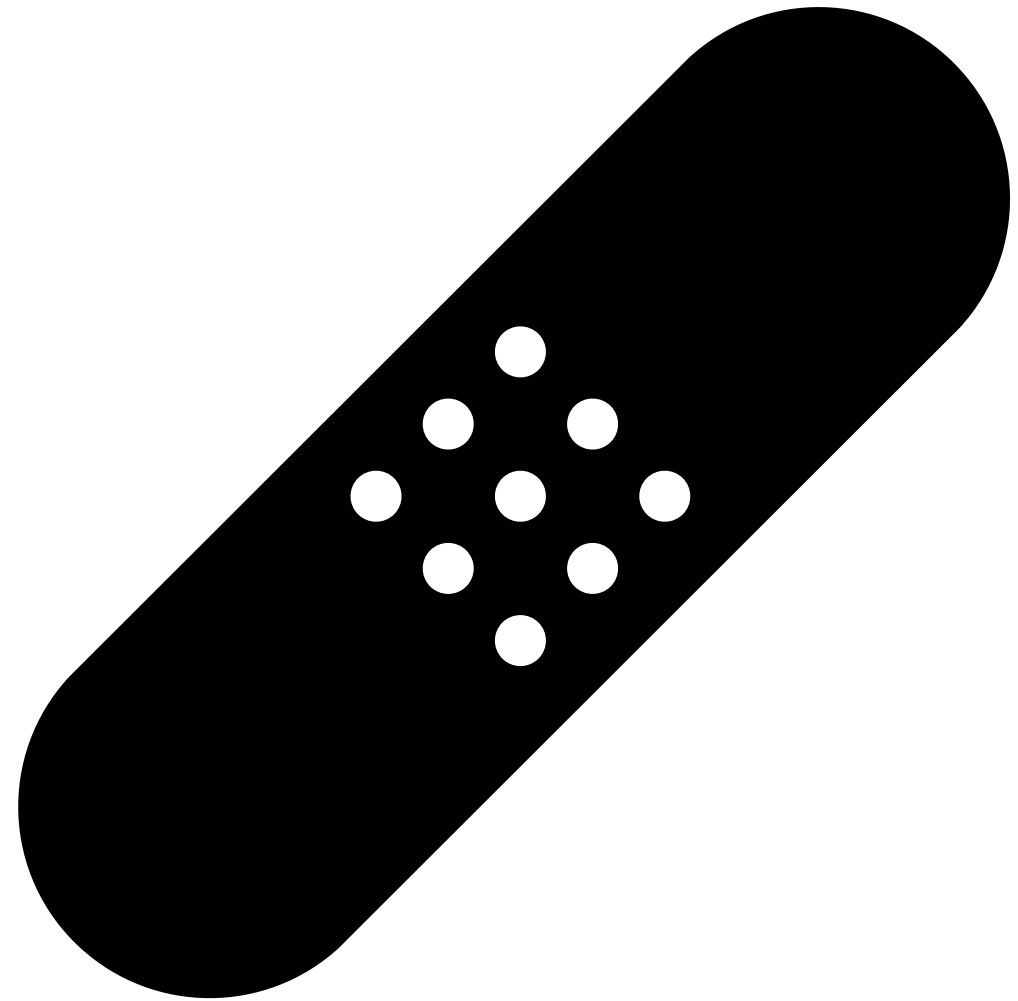


Your target is based on the answer to, What do your customers want, and do you deliver it consistently?



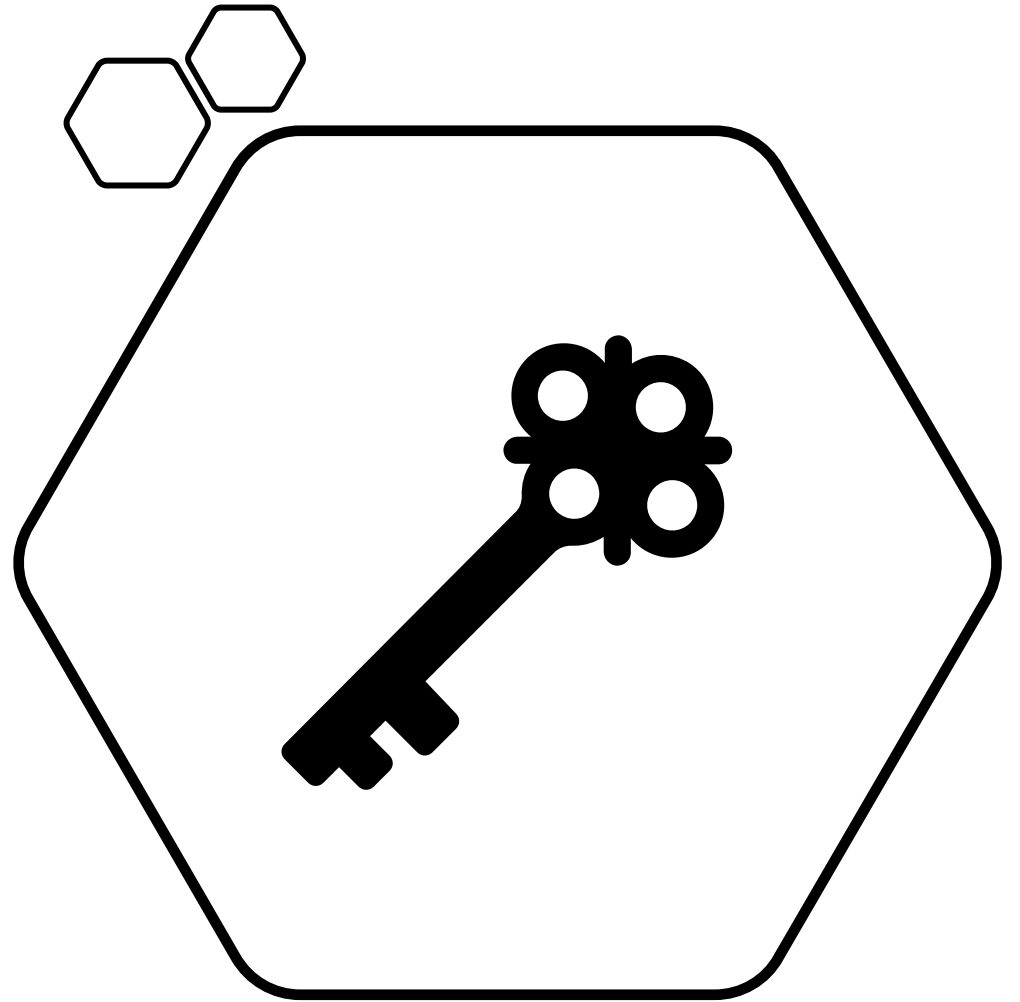
Symptoms \neq
problems

Not looking for
BAND-AID[®]

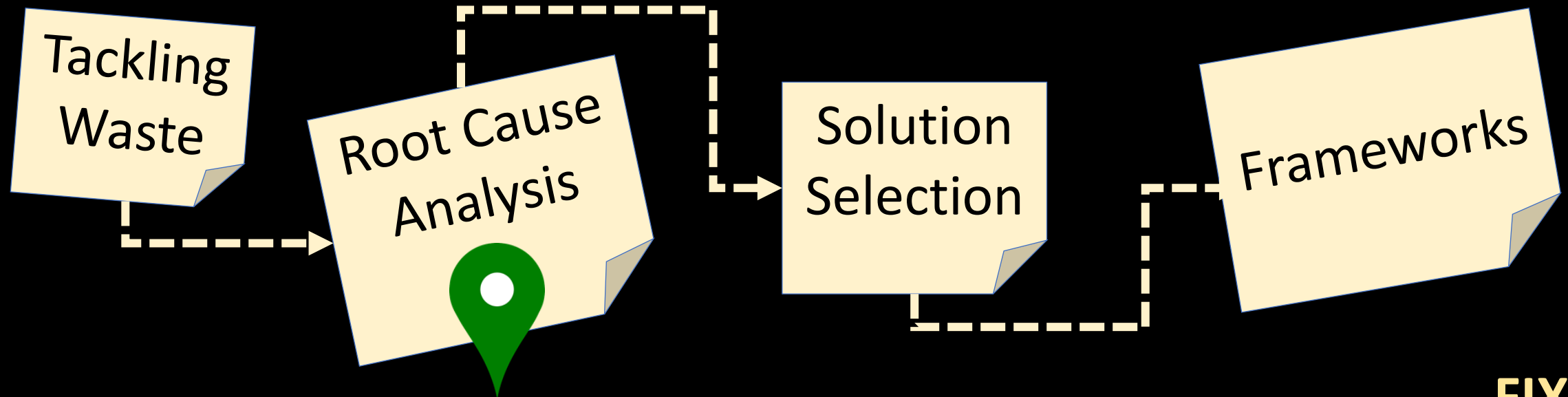
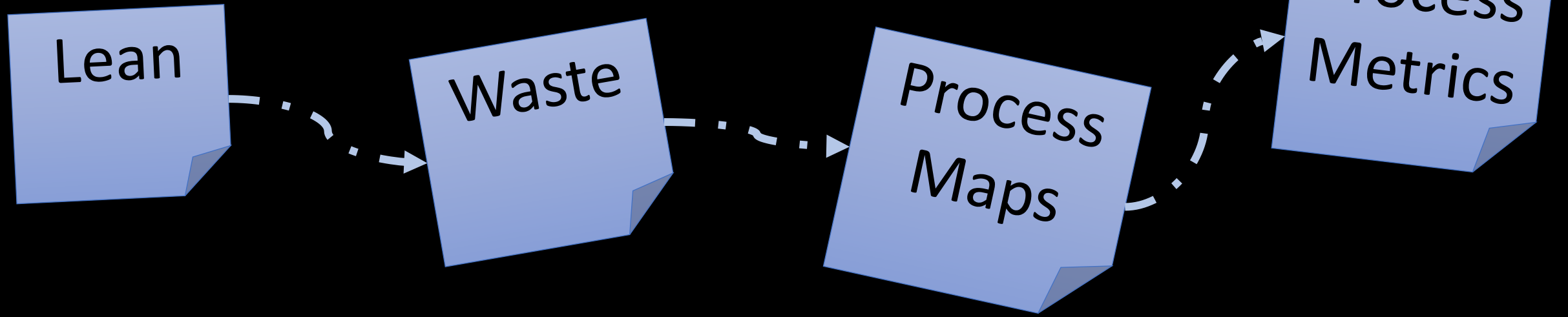


$$Y = f(X)$$

- Like a mystery!
- What is causing Y? What is X?



DIAGNOSING



FIXING



Six Tools for Finding Root Cause

Pareto charts

Fishbone charts

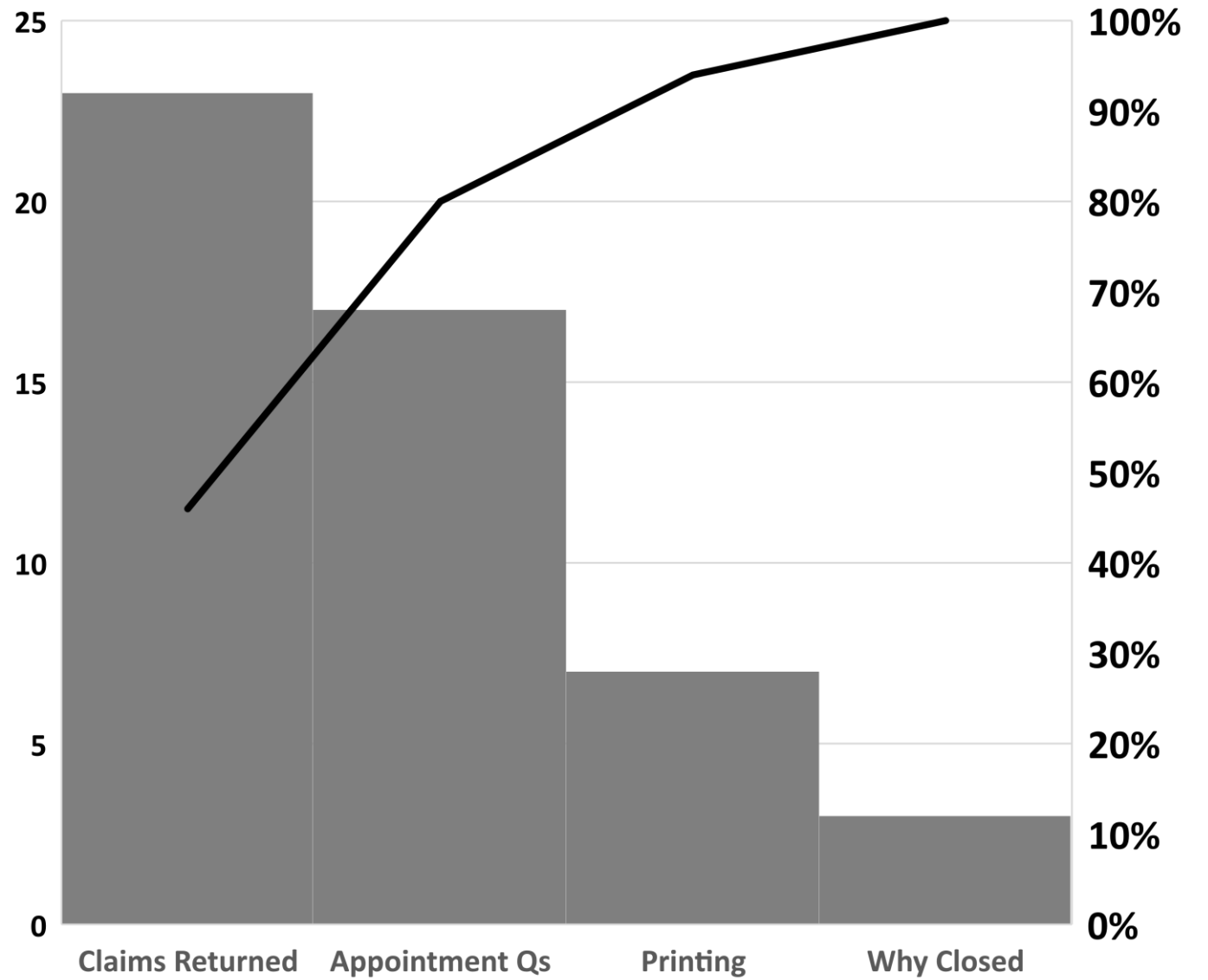
Is/is not analysis

Scatter plots

Problem concentration diagrams

Five whys

1. Pareto Chart

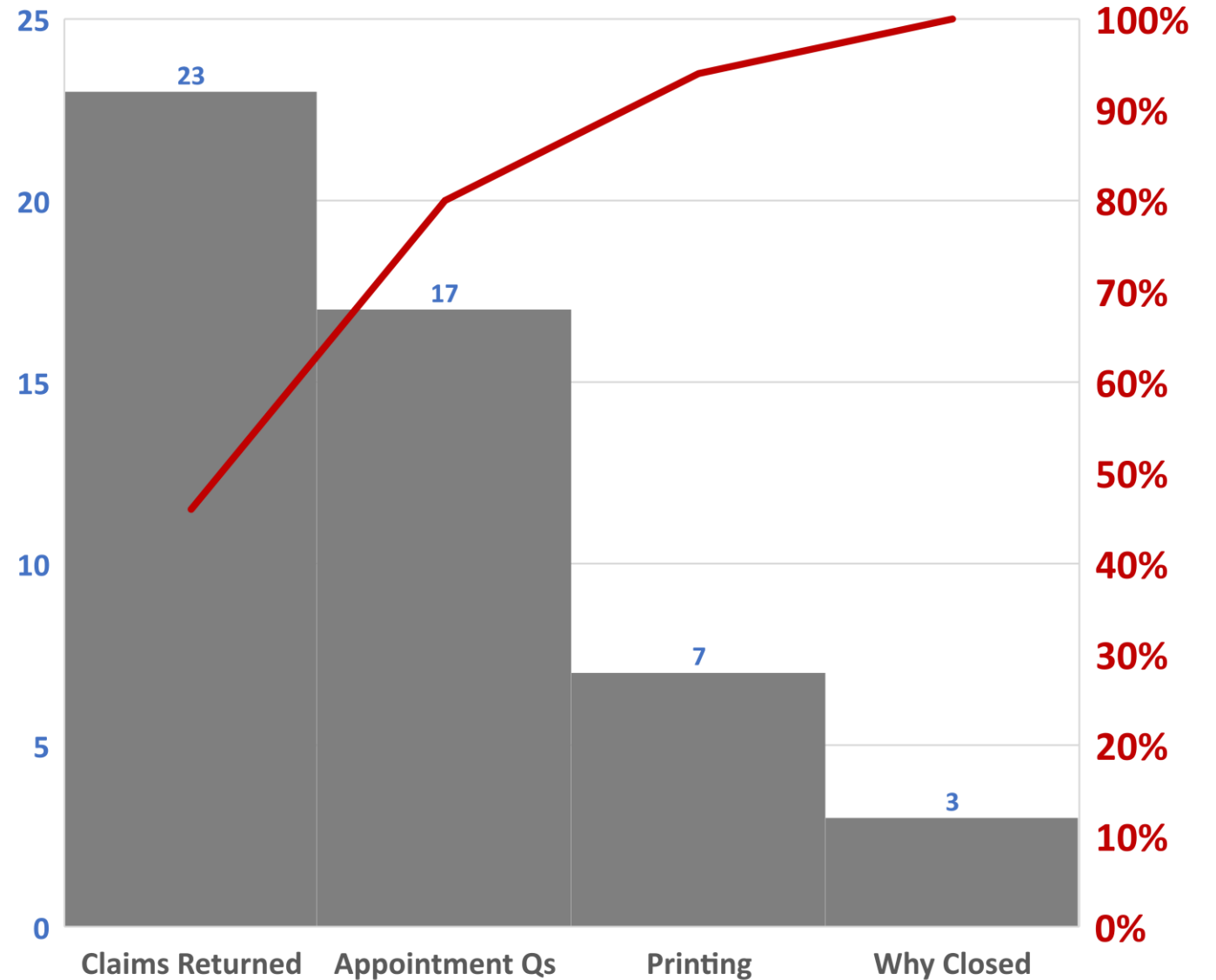


Sample of 50 patron calls

23 claims returned, $23 \div 50 = 46\%$

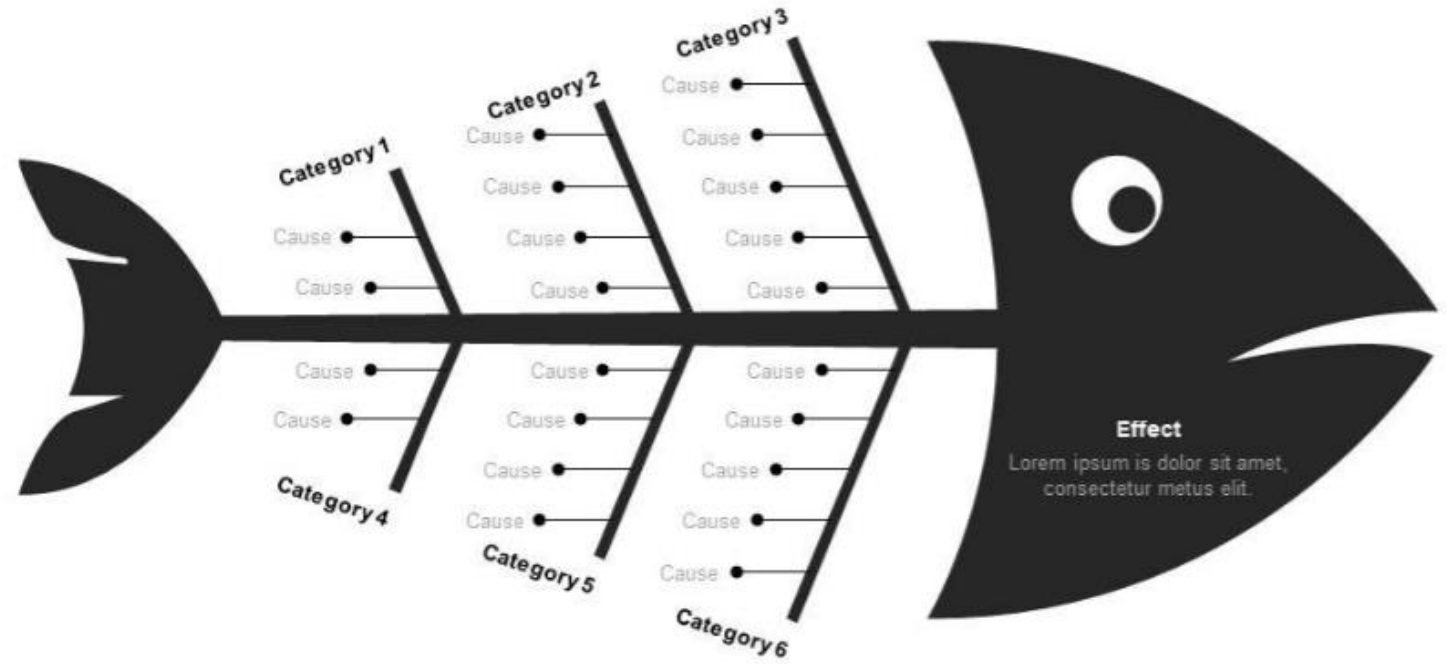
17 appointments, $17 \div 50 = 34\%$

$46\% + 34\% = 80\%$



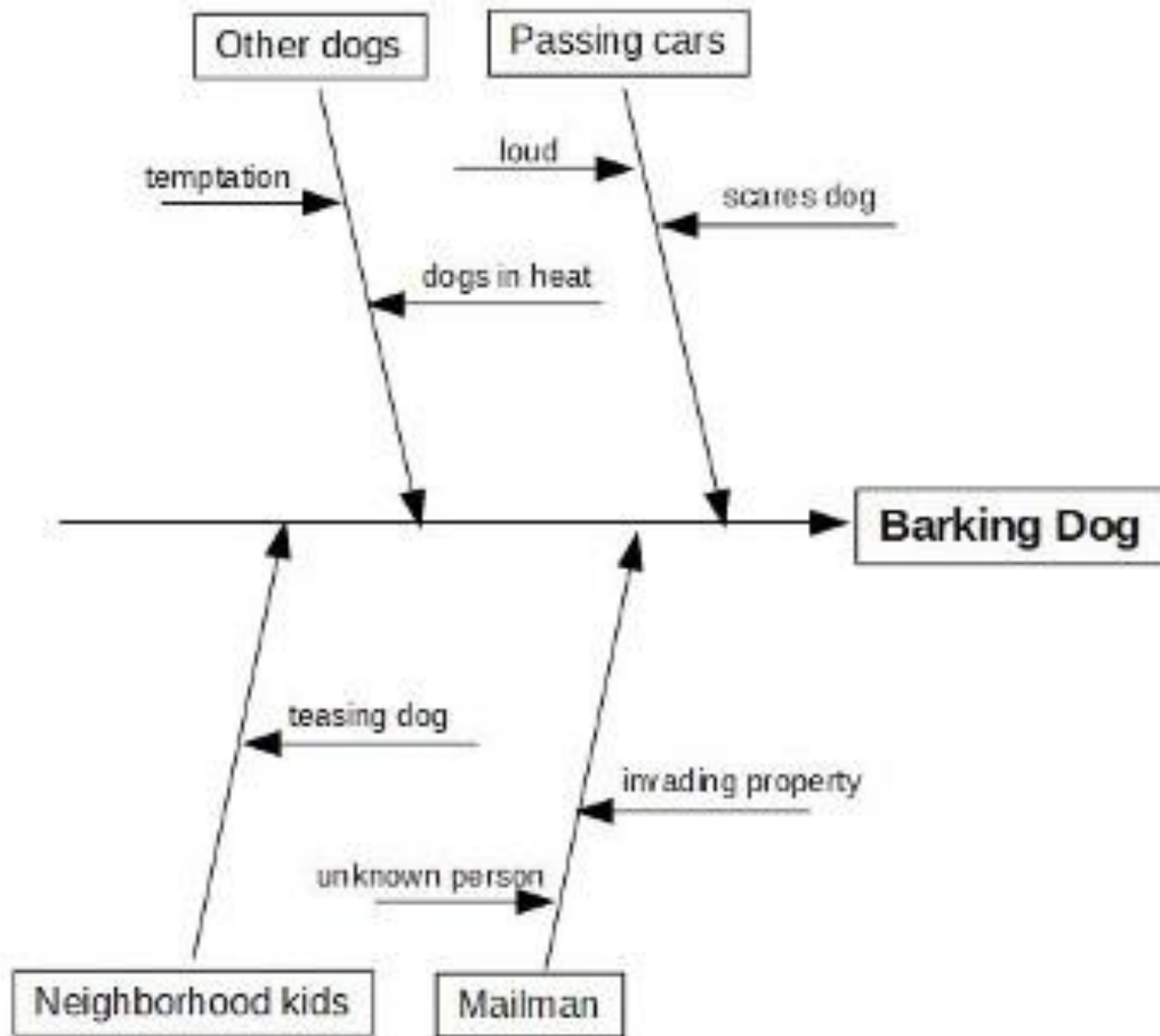
2. Fishbone Chart

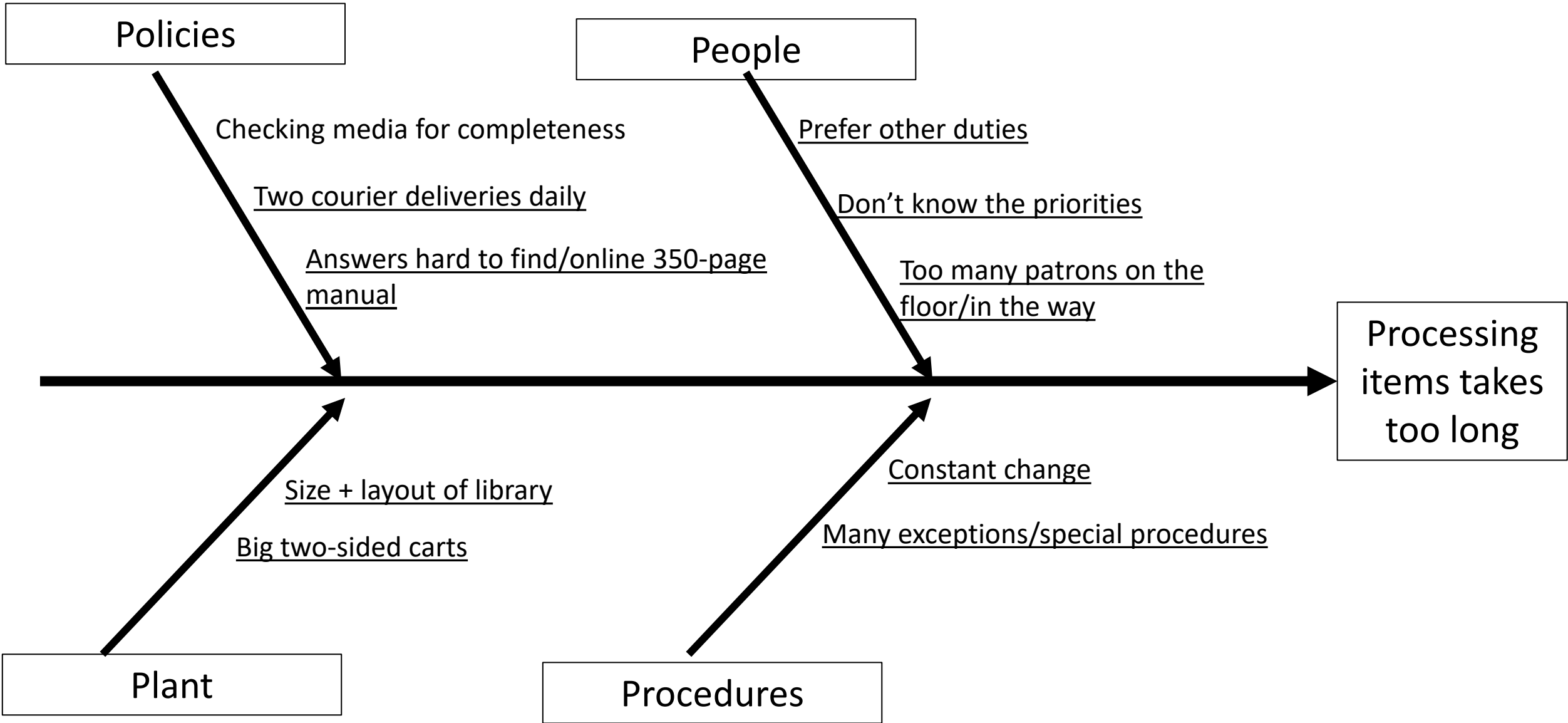
AKA Ishikawa or cause and effect diagram



Cause Categories

- 6 Ms: man (people), methods, Mother Nature (environment), measurement, machines, materials
- 4 Ps: people, process, policies, plant
- Make them your own.





The People Category

Could be lack of training, lack of confirmation that the training was understood, lack of needed job aids, lack of supervision, inadequate job descriptions, etc.



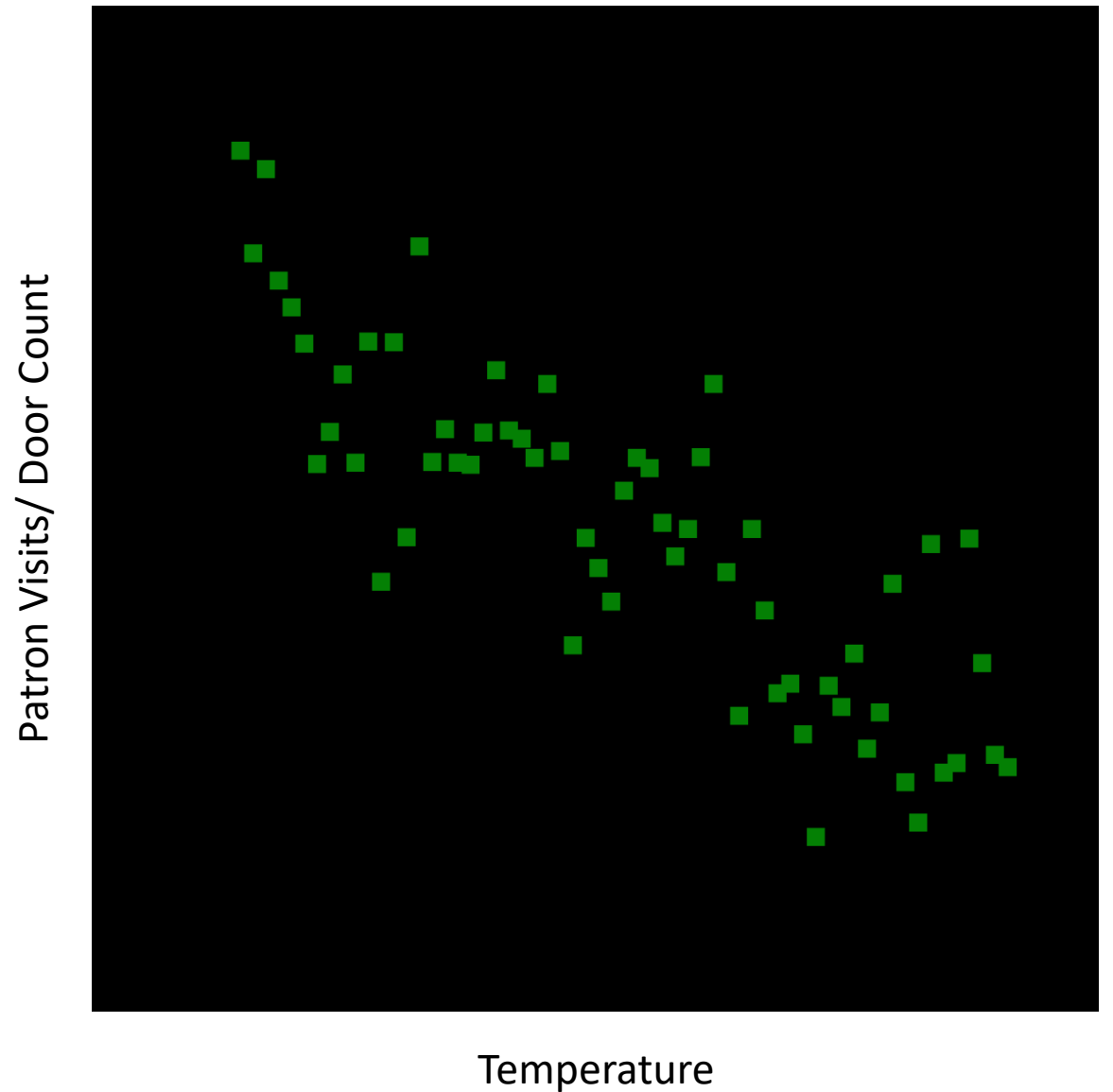
3. Is/Is Not Analysis

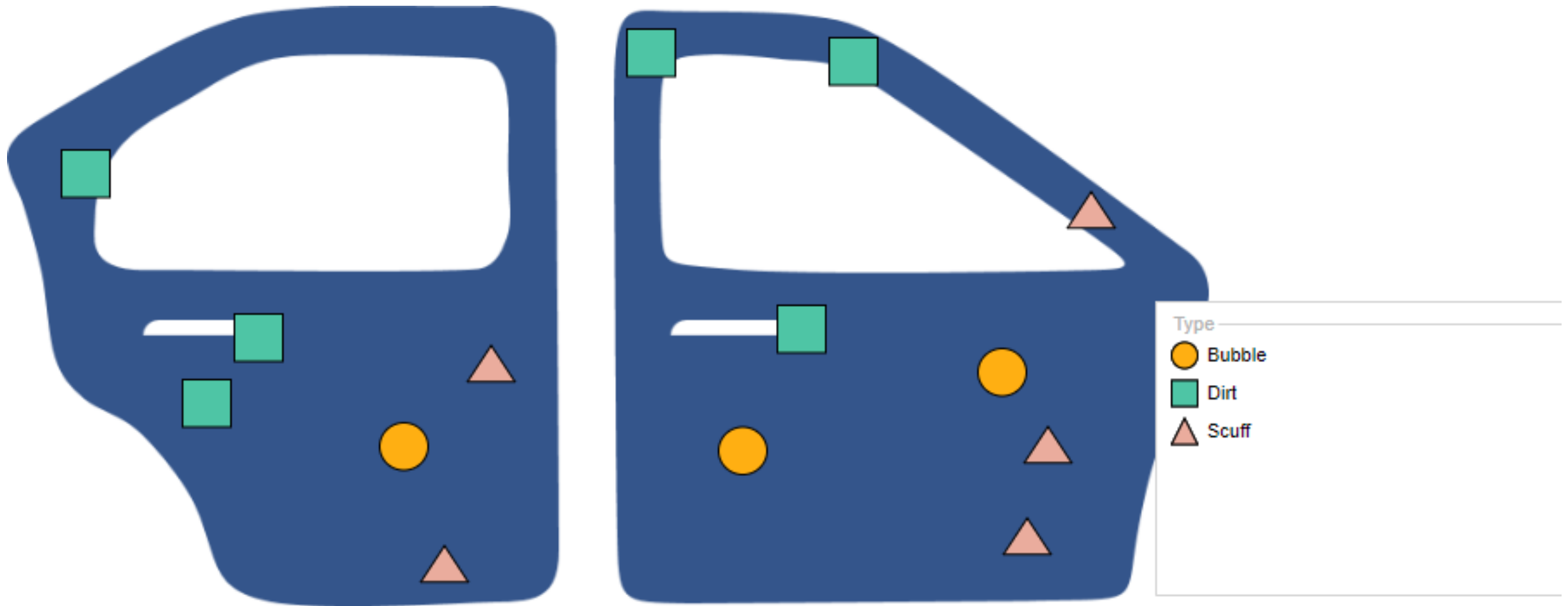
Problem: Forms submitted to Human Resources are not completed fully nor correctly

	Is	Is not
What	Timesheets	Other forms
Where	Libraries A and B	Other libraries
When	When holiday part of pay period	When holiday is not part of pay period
How much	35% incorrect 20% incomplete	
Who	Remote employees Non-exempt employees	On-site employees Exempt employees

4. Scatter Diagram

- Correlation, or relationship, not causation
- X-axis: Normally, your process input
- Y-axis: Your quality characteristic, or effect





5. Problem Concentration Diagram

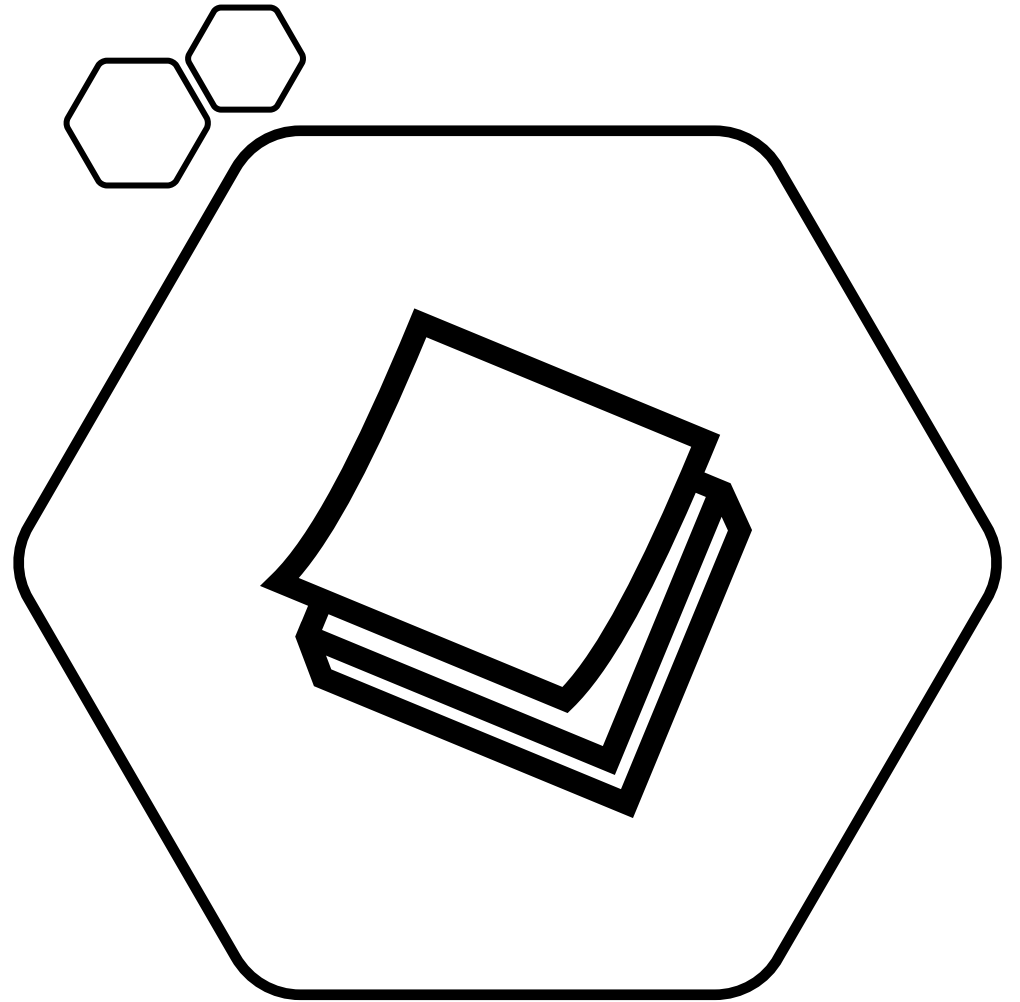
6. Five Whys

Ask why a situation occurred five times to dig beneath the most obvious cause to get to the root of the problem.



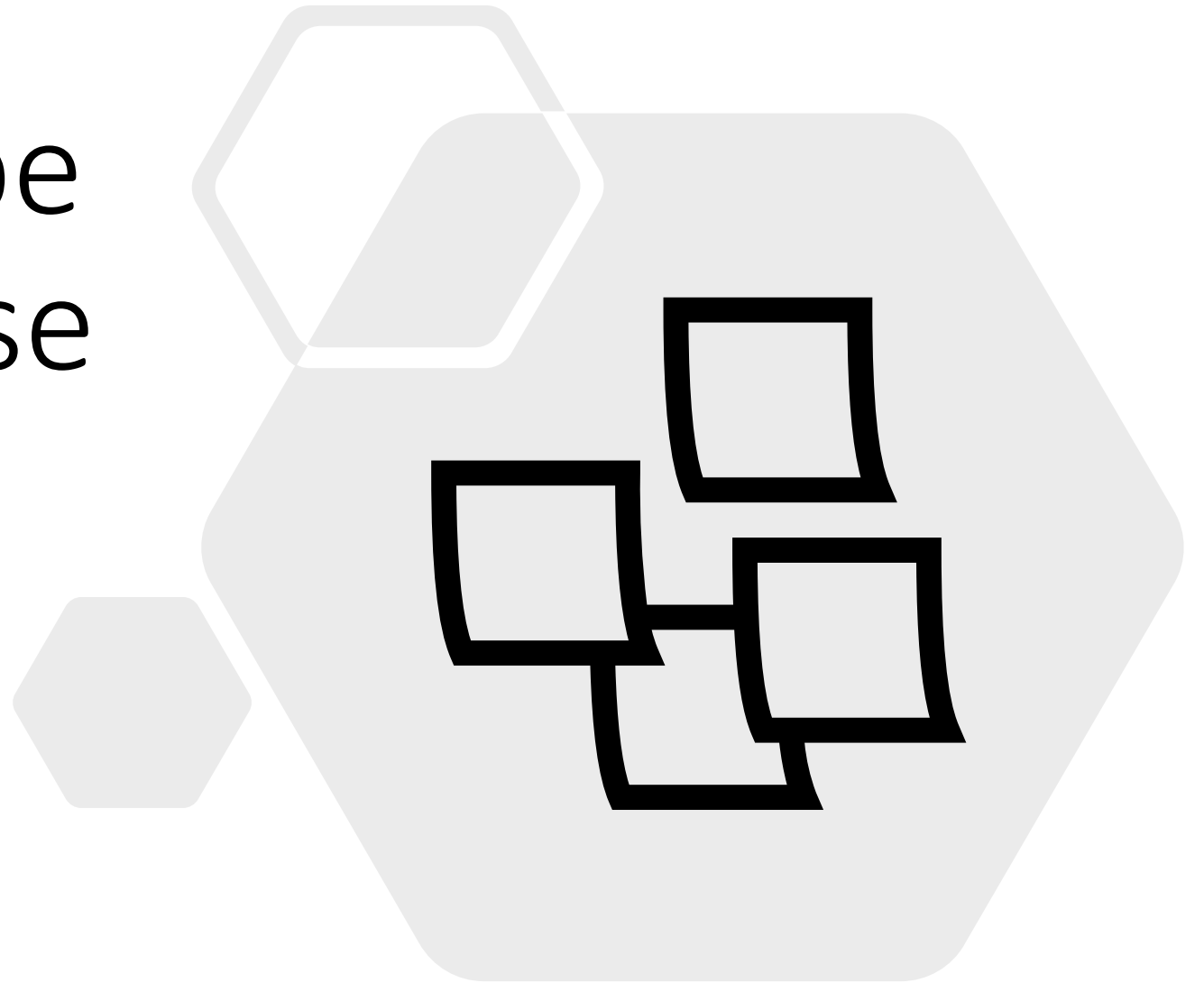
Let's Try It!

- The Problem: When you went to the office supply area to get a stack of Post-its® for your upcoming staff training there were none to be had.
- In your breakout group, take **six minutes** to ask ‘why’ five (or more!) times to arrive at what you think is the root of the problem. Why did the problem occur? Pick one possible reason at first and delve; it’s not about brainstorming five possible reasons.
- Identify a reporter.



Reporters, type your root cause in chat

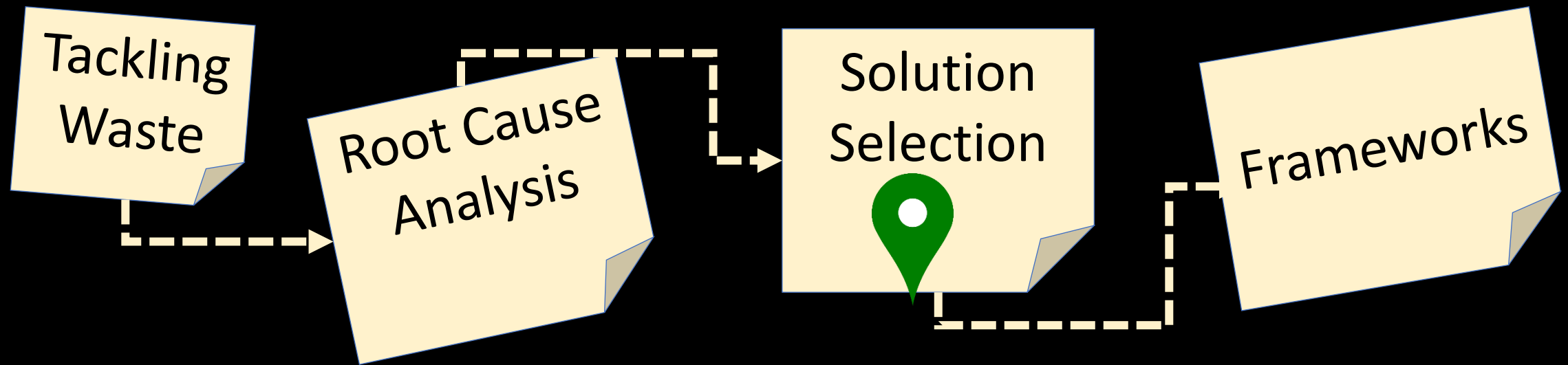
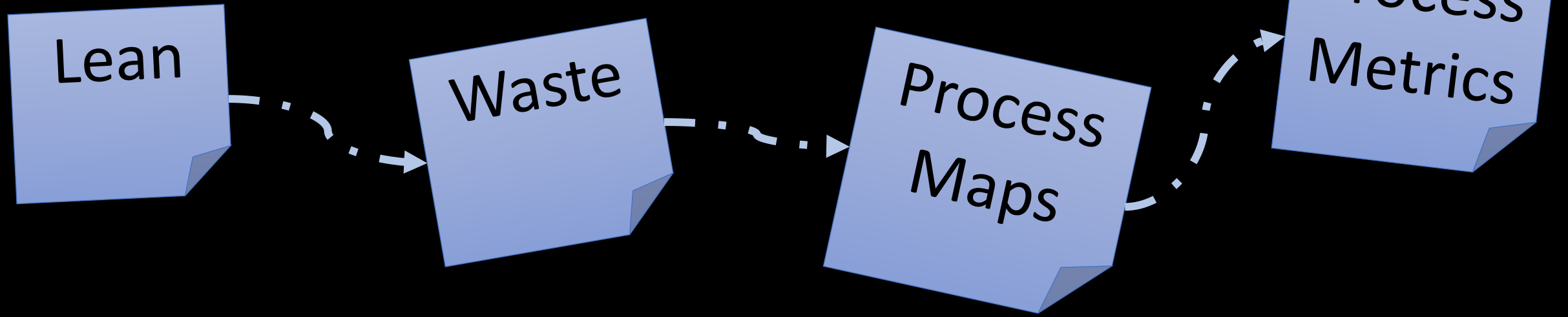
What did your group determine
was the root cause of the
absent Post-Its[®] problem?



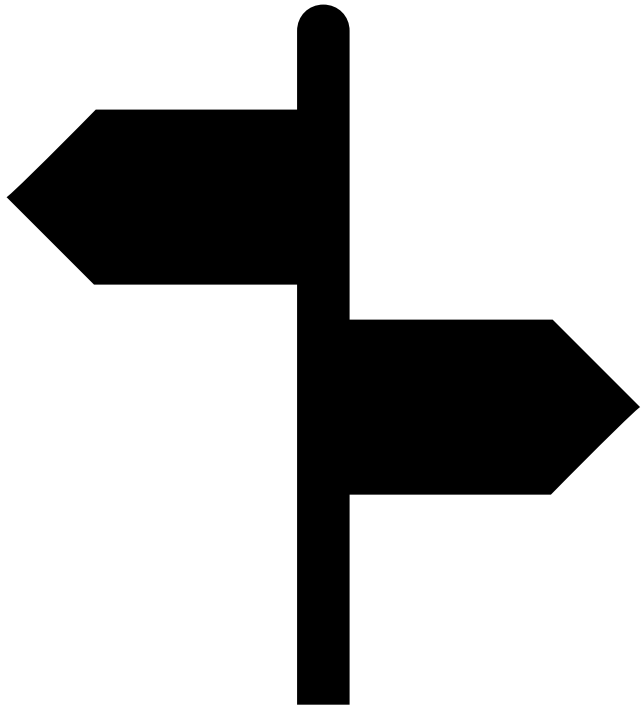
Poll: Which root cause analysis tools do you see yourself most likely to use? Click all that apply.

- Pareto chart
- Fishbone chart
- Is/is not analysis
- Scatter plot
- Problem concentration diagram
- Five whys

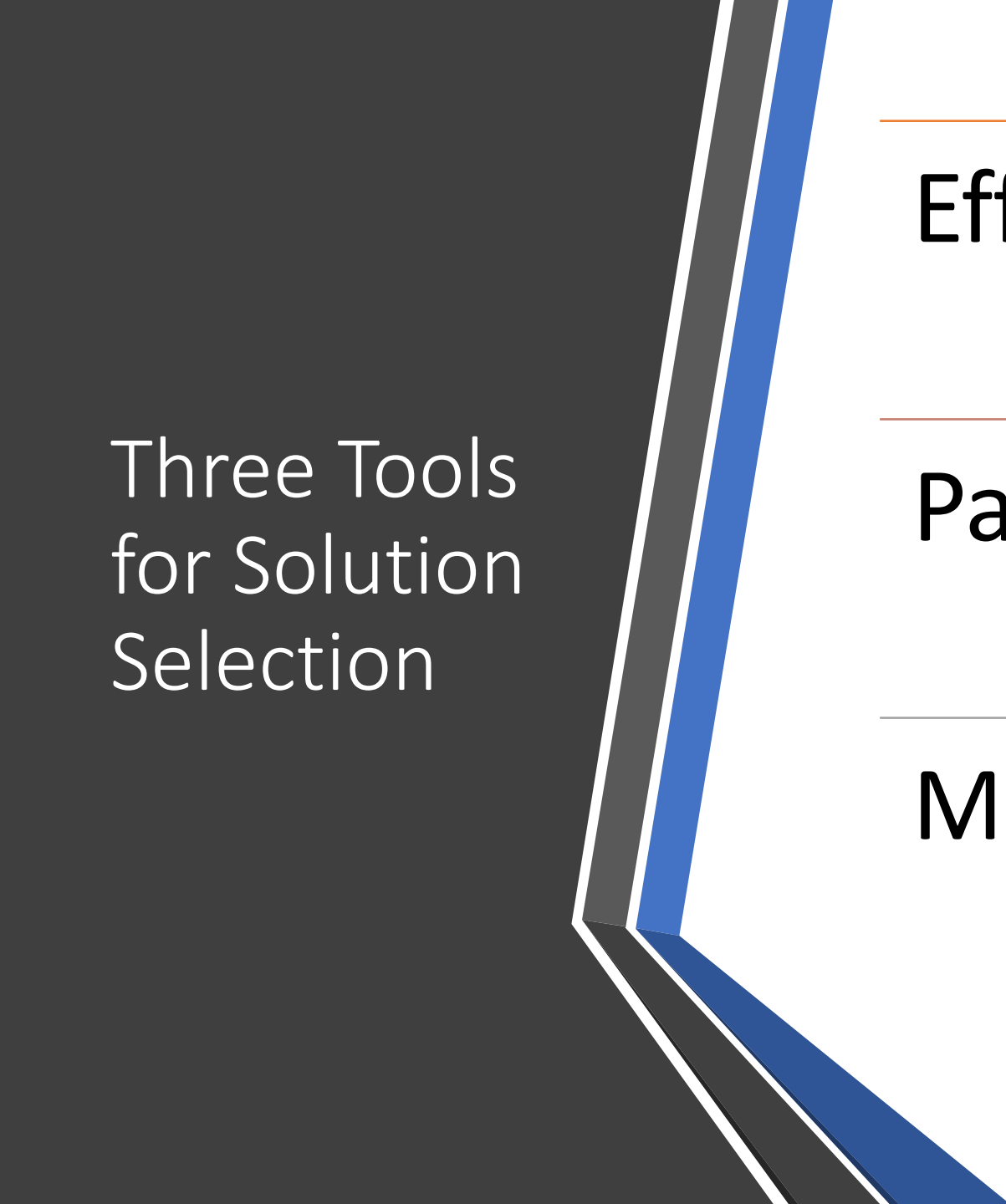
DIAGNOSING



FIXING



Making Choices



Three Tools for Solution Selection

Effort-impact matrix

Paired comparison chart

Multi-voting

DIRECTIONS

1. List solution options
2. Give each option a code (e.g., A,B,C)
3. Rate effort and impact, given agreed upon definitions
4. Plot each on grid (x,y)

Possible Solutions 1	Code 2	Effort Required to Implement (x) 3	Expected Impact on Problem (y)
Option	A		
Option	B		
Option	C		
Option	D		

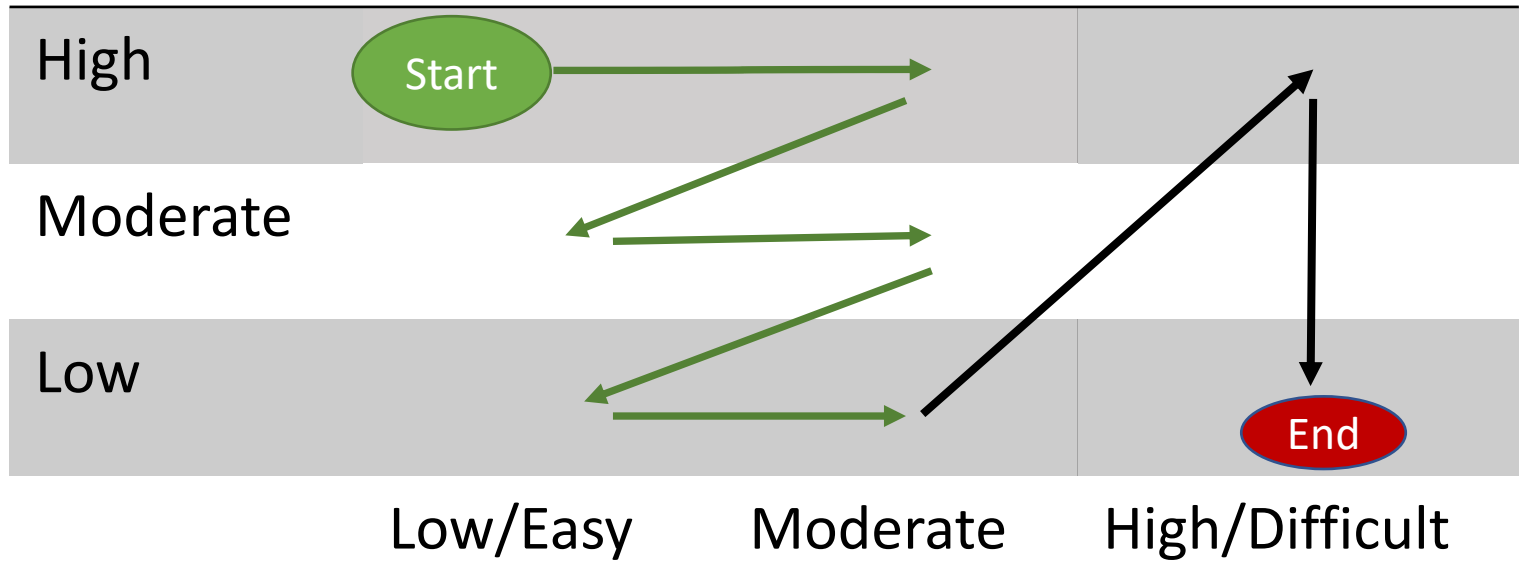
4 I M P A C T	High			
	Medium			
	Low			
		Easy	Moderate	Difficult
		EFFORT		

Possible Solutions	Effort Required to Implement (x)	Expected Impact on Problem (y)
Option A	Difficult	High
Option B	Moderate	Low
Option C	Easy	High
Option D	Moderate	Medium

I M P A C T	High			
	Medium			
	Low			
		Easy	Moderate	Difficult
		EFFORT		

Impact ↓

Implementation Sequence



Effort →

I M P A C T	High	C		A
	Medium		D	
	Low		B	
		Easy	Moderate	Difficult
		EFFORT		

Recommended Implementation Sequence:

C → D → B → A

Start with Definitions

Sing from the same song sheet

What is meant by

- High, medium, and low impact
- Easy, moderate, and difficult effort



Sample Definitions

EFFORT

Easy: Department supervisor has full authority to implement

Moderate: Will require approval of director

Difficult: Will required Board approval

IMPACT

High: Likely to save >4 hours of lead time

Medium: Likely to save 30 minutes to 4 hours of lead time

Low: Likely to save <30 minutes of lead time

Let's Try It!

- You will have **seven minutes** in your breakout room to do the activity.
- Need your worksheet.
- Let's review directions.

Effort-Impact Matrix Activity Worksheet

The problem: Weeding the entire collection takes too long (lead time = four weeks).

1. Brainstorm five or six possible solutions to address this problem/situation.

2. Give each solution a code (e.g., A, B, C, etc.).
3. Using these definitions, place your solution codes on the matrix below.

Effort (how easy will it be to implement this solution)

Easy: This team can make implement this solution next month with no approval.

Moderate: This solution requires all library managers, the manager of Tech Services, and the director of library operations to approve it. It could be implemented for the next quarter, if all agree.

Difficult: This solution will require the board of trustees or city manager to approve and could not be implemented until next year.

Impact

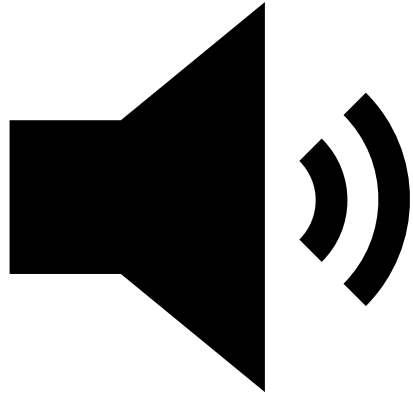
High: This solution would reduce the time to weed the entire collection by >50% (would cut lead time by more than two weeks).

Medium: This solution would reduce the time to weed the entire collection by 25-50% (would reduce lead time by one to two weeks).

Low: This solution would reduce the time to weed the entire collection by <25% (would shave less than one week from lead time).

IMPACT	High			
	Medium			
	Low			
		Easy	Moderate	Difficult
		EFFORT		

4. Select one person to be prepared to report out the first solution you plan to implement.



Let's hear it!

With what solution will you begin?

Option	A	B	C	D	E	F	G
A							
B							
C							
D							
E							
F							
G							

2. Paired Comparison Chart

What's your favorite snack?

Options	Crackers	Popcorn	Apple	Nuts
Crackers	Black	Light Blue	Light Blue	Light Blue
Popcorn	Black	Black	Light Blue	Light Blue
Apple	Black	Black	Black	Light Blue
Nuts	Black	Black	Black	Black

Crackers:

Popcorn:

Apple:

Nuts:

3. Multi-voting

A. $N \div 3$

Example: 18 options to choose from $\div 3 = 6$
votes per person

B. 10-4 voting

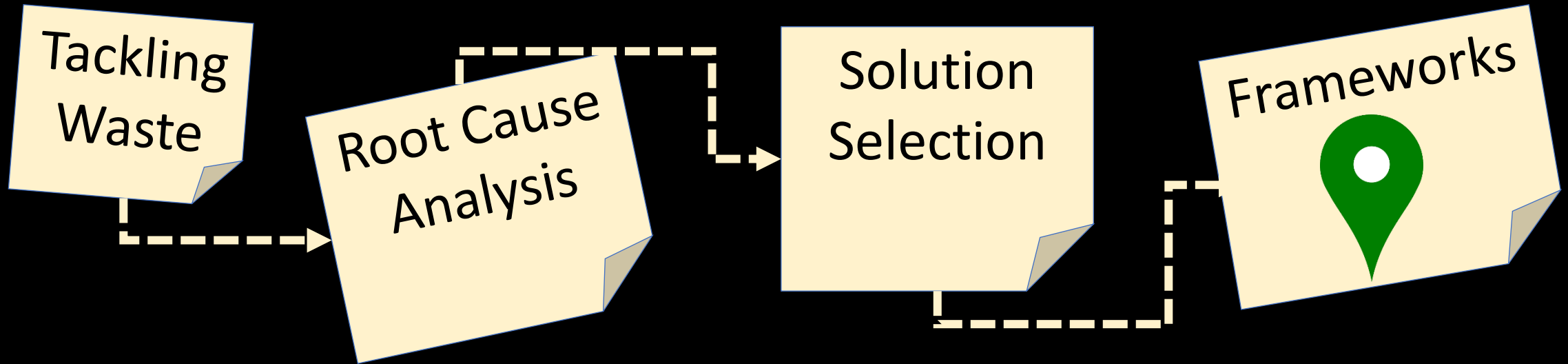
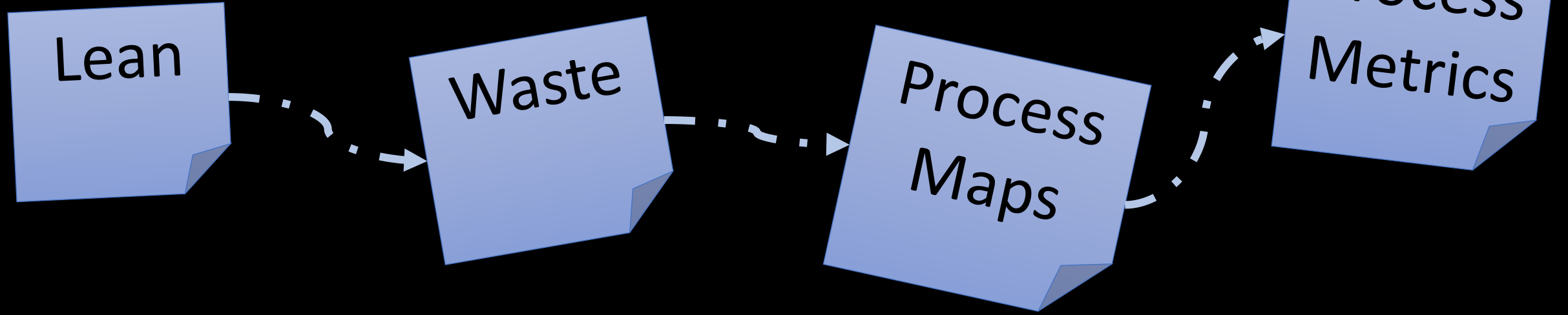
10 votes total per person, no more than 4
votes on one option



Multivoting Example

Budget Priorities	
New billing system	
Additional staff	
Hire Six Sigma consultant	
Improve office equipment	
Increase travel budget	

DIAGNOSING



FIXING



Continuous
improvement
is about
experiments

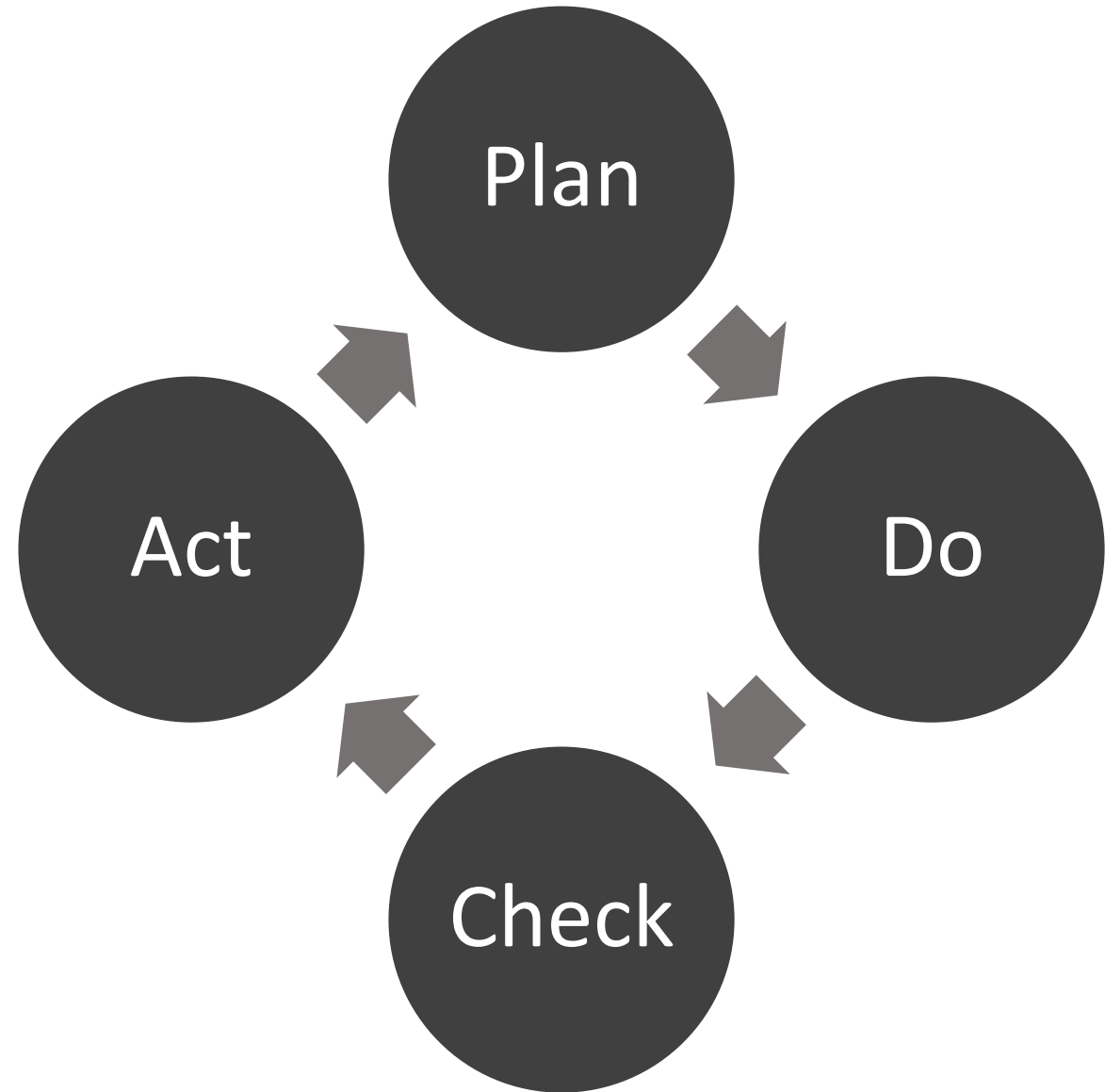
Less is More

- Focus on one change to test.
- As with experiments, don't test five things at once. You will not know what worked and did not.
- Compare results to your baseline.



1. PDCA Framework

AKA PDSA (study) or
Deming Cycle



2. DMAIC

Define

Measure

Analyze

Improve

Control

I. Thou shalt **involve the people** in the process in improving the process.

II. Thou shalt **not lay off** employees as a result of a successful Lean project.

III. Thou shalt **post before and after** images and metrics; celebrate success!

IV. Thou shalt require **standard work**.

V. Thou shalt not think a process **maintains** itself.

VI. Thou shalt strive for **continuous improvement**.

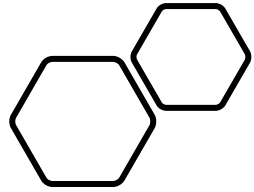
VII. Thou shalt **keep learning**.

VIII. Thou shalt **reduce batch size**.

IX. Thou shalt **mistake-proof**.

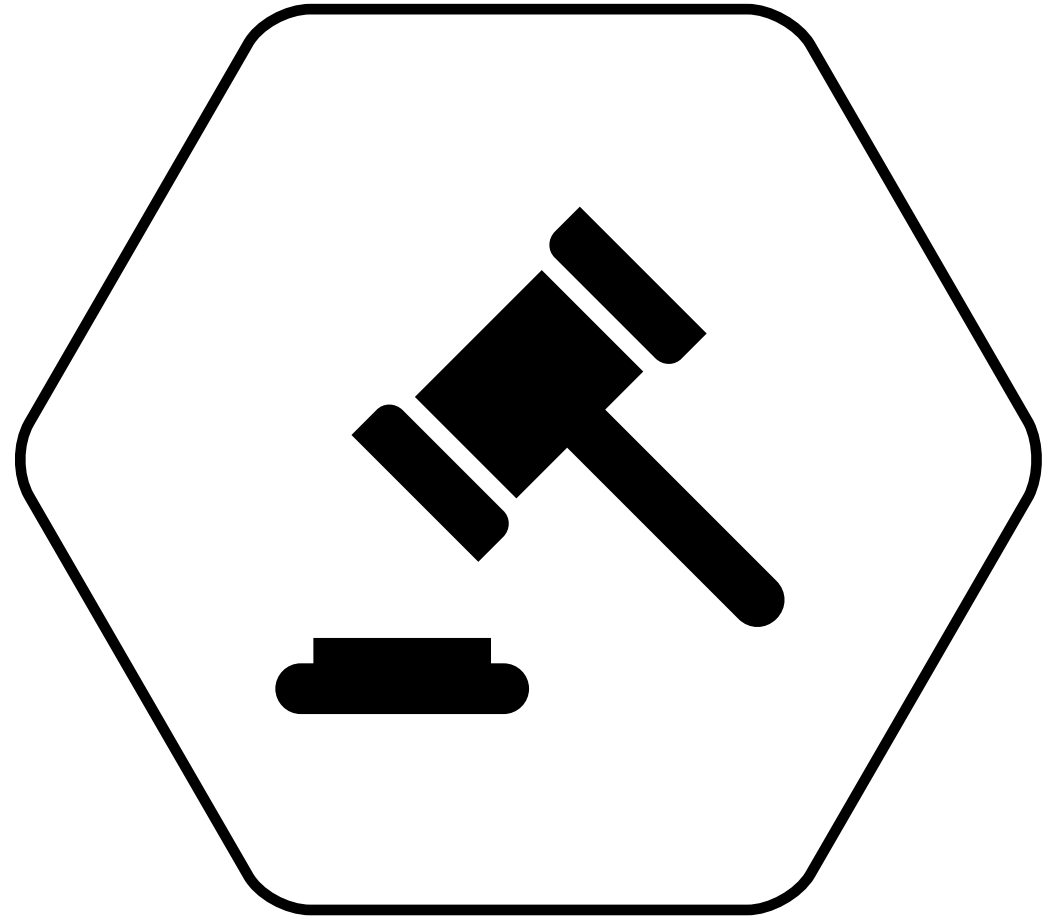
X.

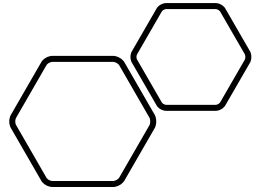
Jane's 10 Lean
Commandments



Type in chat.

Help write the
tenth
commandment



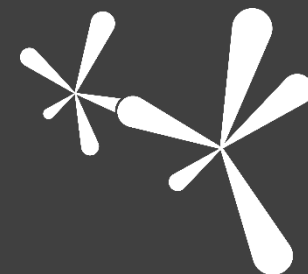


Wrap It Up



Thank you

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ARAPAHOE
LIBRARIES

Jane Martel