



# Root Cause Analysis

Jane Martel | May 26, 2021



# Agenda

Topic one: What is it?

Topic two: Why important?

Topic three: How tackle it?

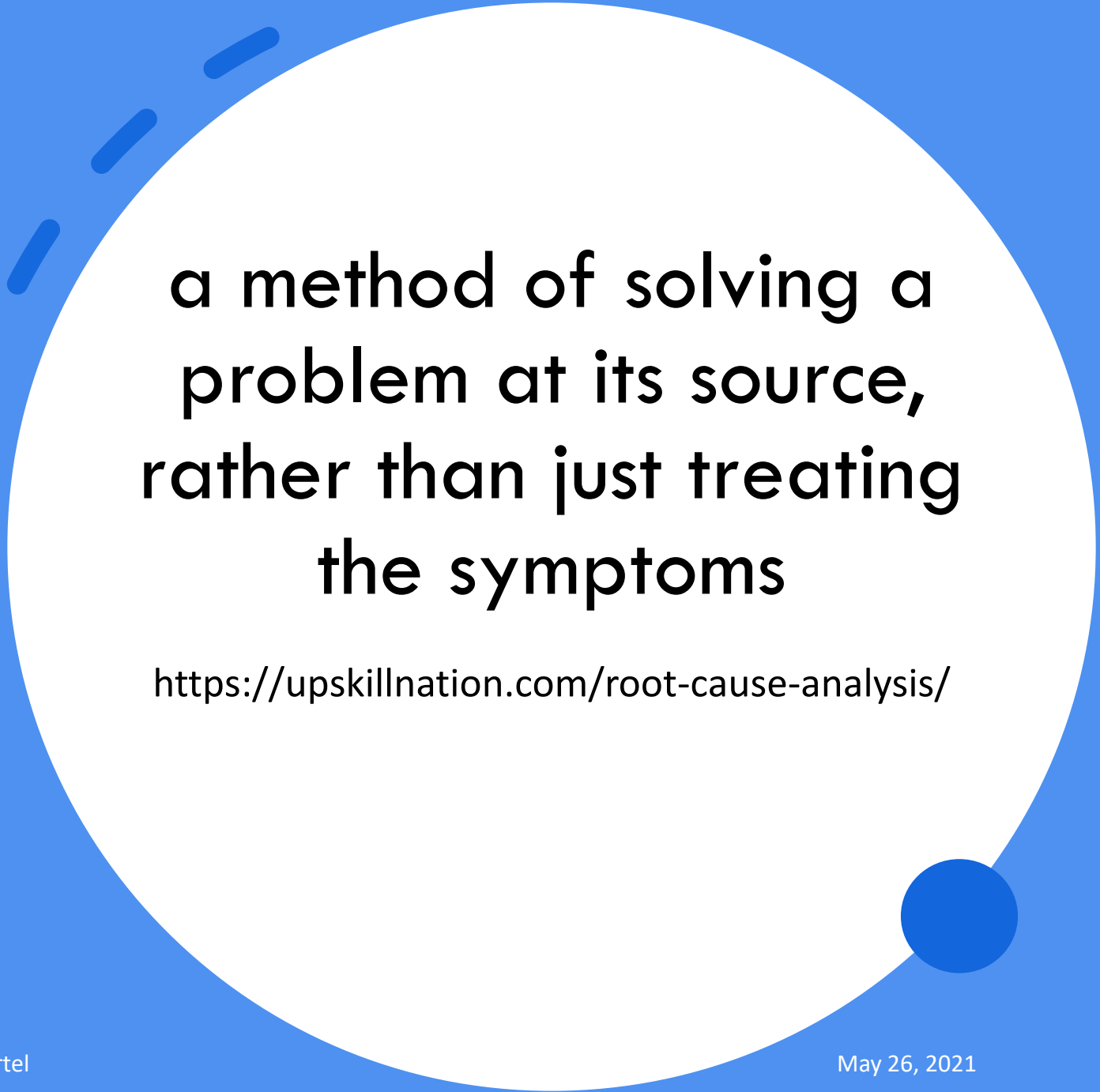
Topic four: Considerations

Topic five: Resources



# What is RCA?

Topic One



a method of solving a  
problem at its source,  
rather than just treating  
the symptoms

<https://upskillnation.com/root-cause-analysis/>

# And...

- Symptom: A signal that signal that something is wrong
- Root cause: The reason for the problem

*A machine is producing defective parts. It's found that a device on the machine has been damaged, so it is replaced. However, further investigation reveals that the reason the device was damaged was that it had been bumped by a forklift. It was subsequently found that the painted line on the floor that showed forklift navigation areas around the machine had worn off. The organization had no regular process for reviewing the status of the lines and repainting them when needed.*



## An example

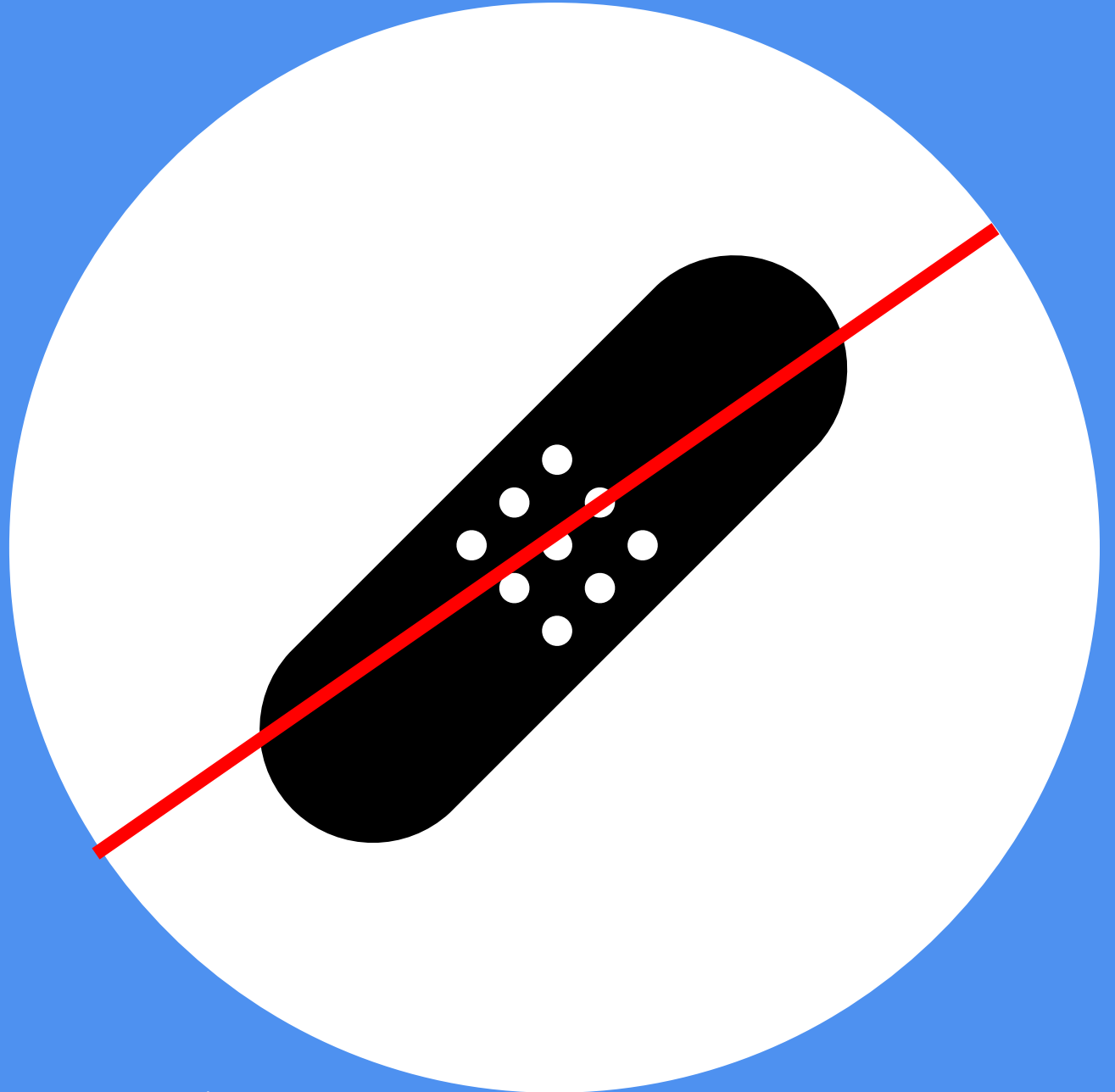


# Why is RCA important?

Topic Two

Symptoms  $\neq$   
problems

We're not looking for  
BAND-AID®







# How do you do RCA?

Topic Three

# Six Tools for Finding Root Cause

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Pareto charts

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Fishbone charts

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Is/is not analysis

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Scatter plots

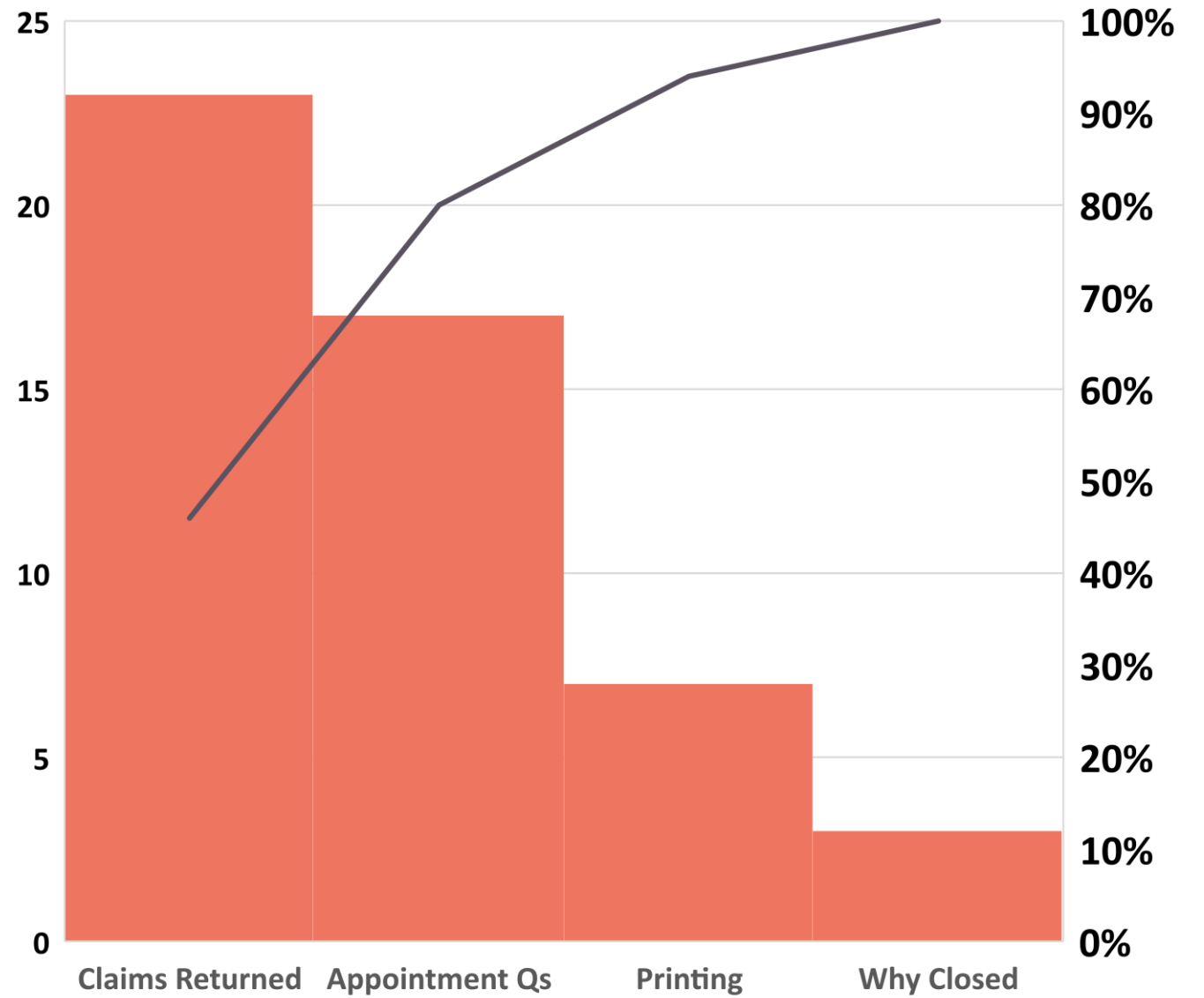
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Problem concentration diagrams

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Five whys

# Pareto Chart

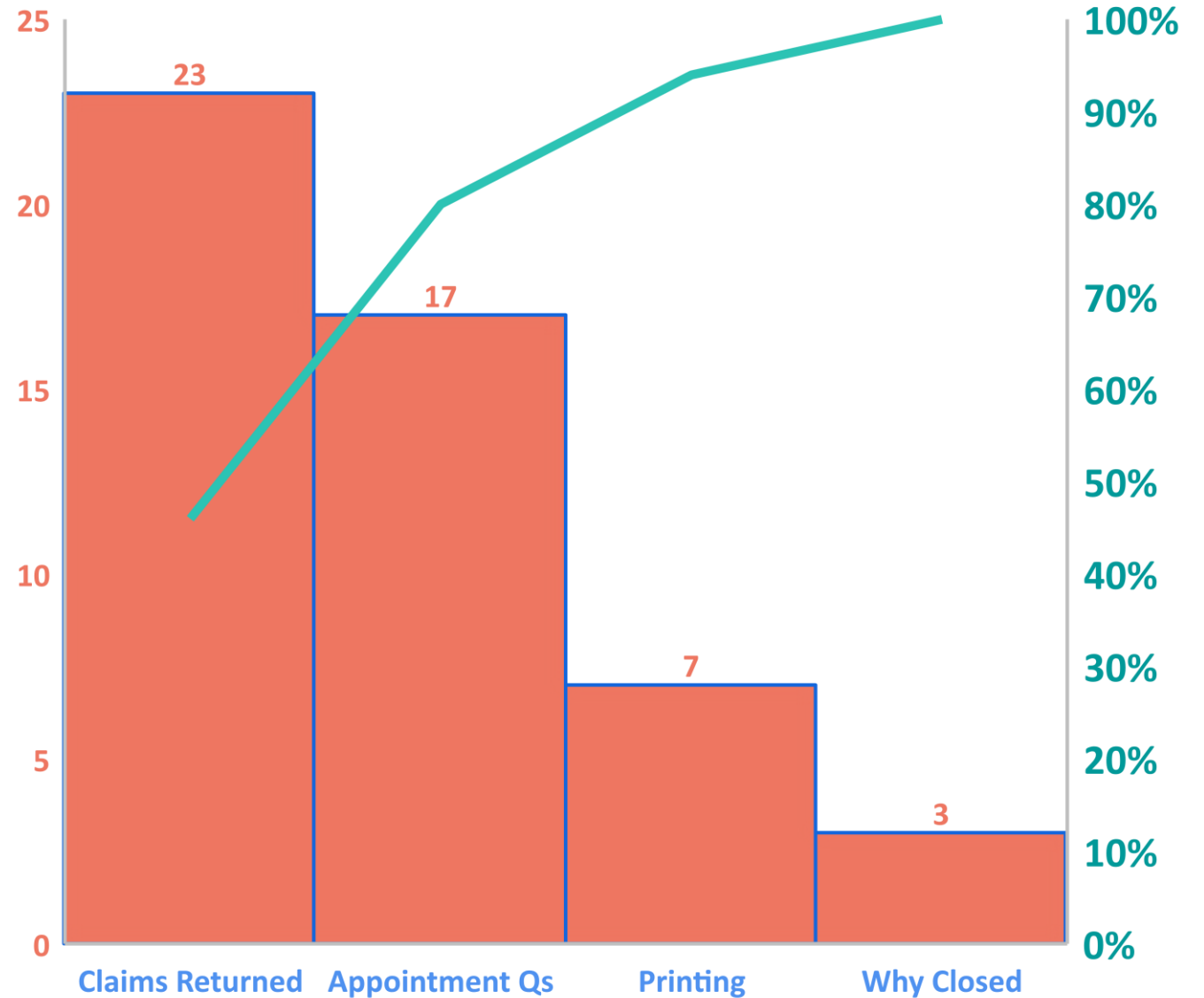


Sample: 50 patron calls

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

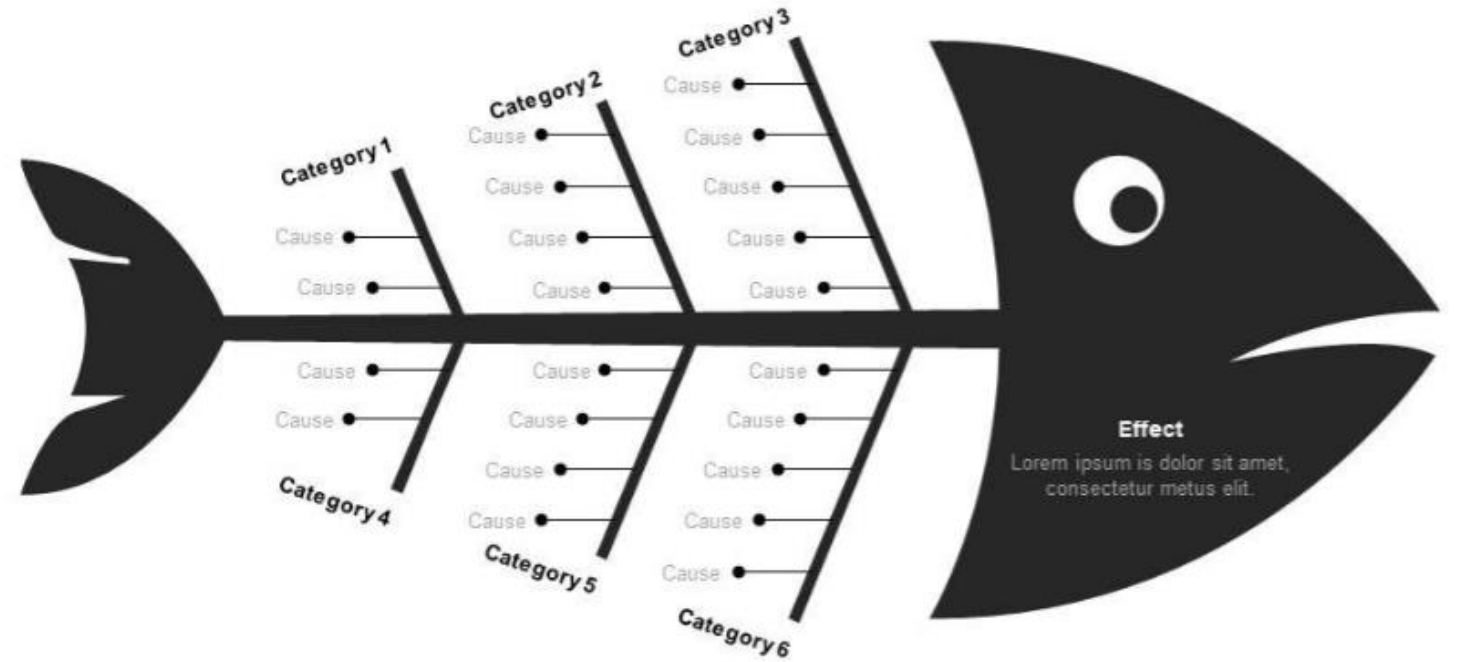
17 appointments,  
 $17 \div 50 = 34\%$

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



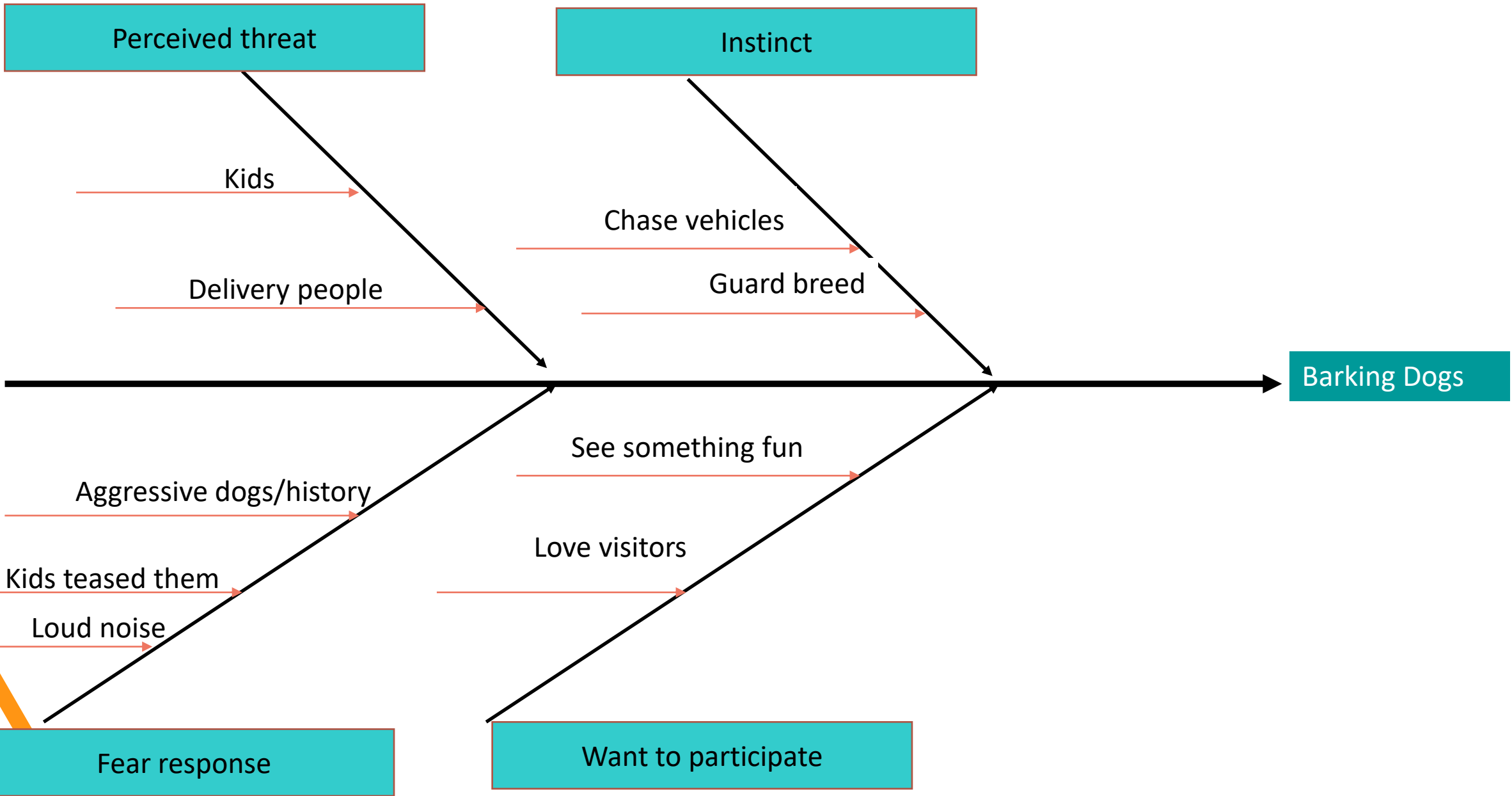
# Fishbone Chart

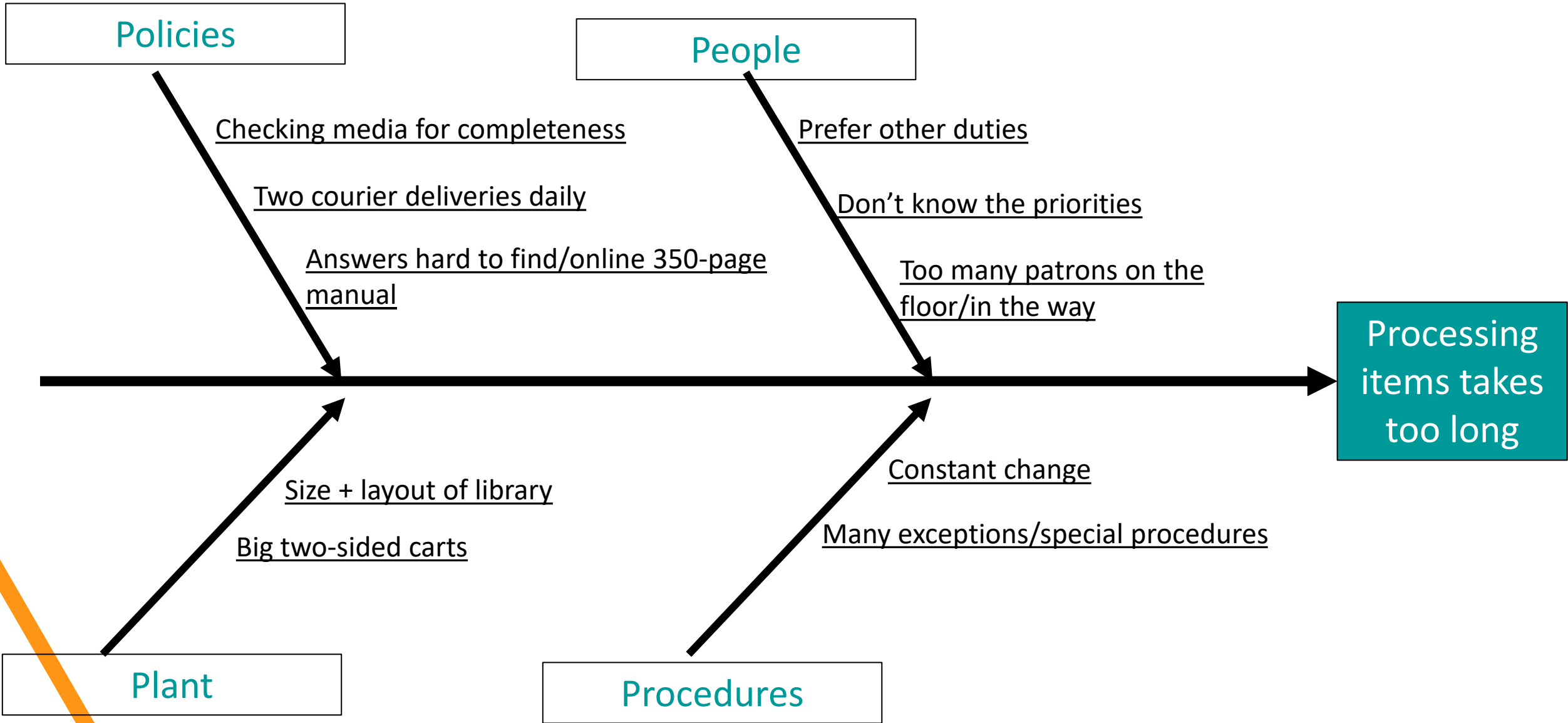
AKA Ishikawa diagram or cause and effect diagram



# Common Cause Categories

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







# 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.



# Is/Is Not Analysis

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

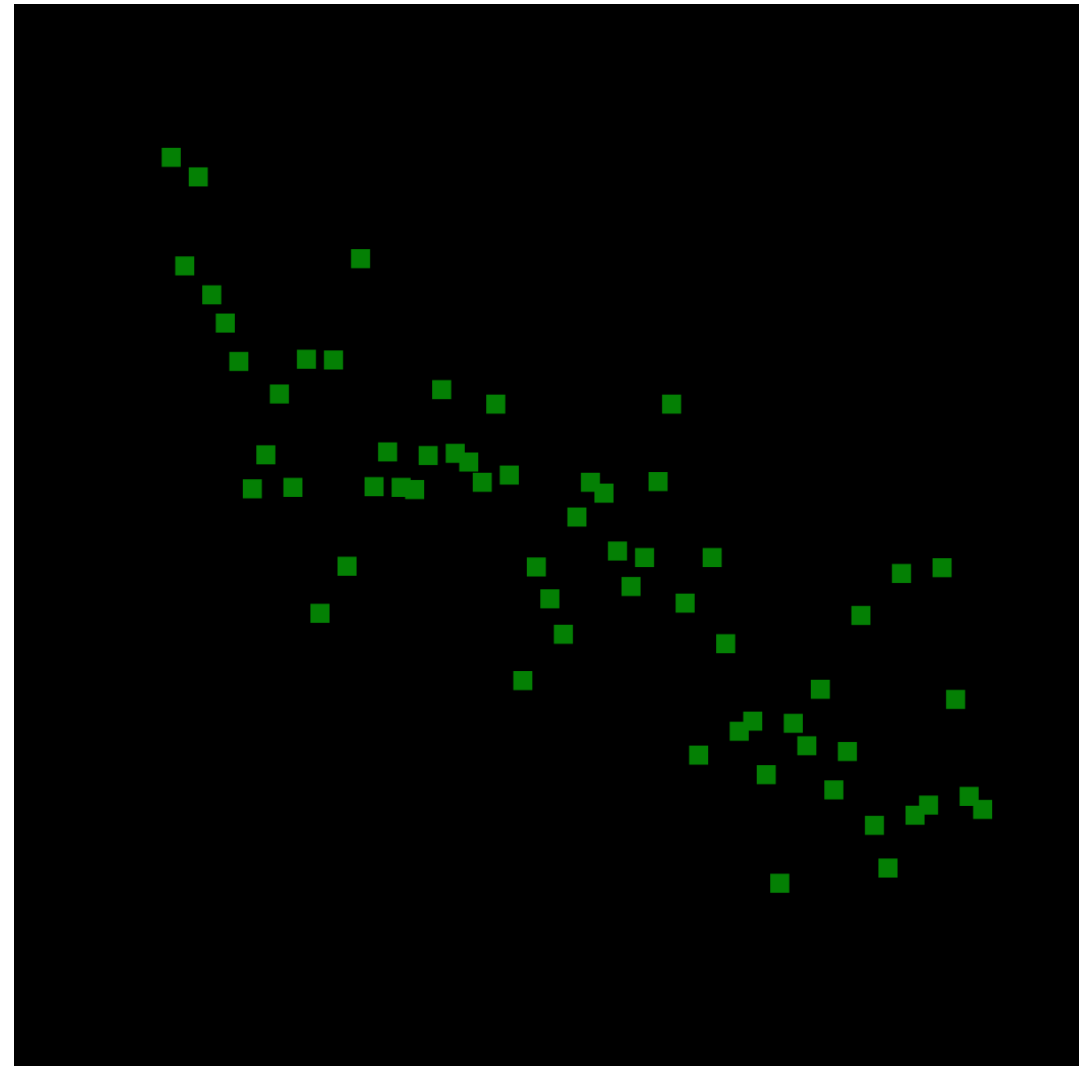
	Is	Is not
What	Timesheets	Other forms
Where	Libraries A and B	Other libraries
When	When holiday part of pay period	No holiday in pay period
How much	35% incorrect 20% incomplete	
Who	Remote employees Non-exempt employees	On-site employees Exempt employees

# Scatter Diagram

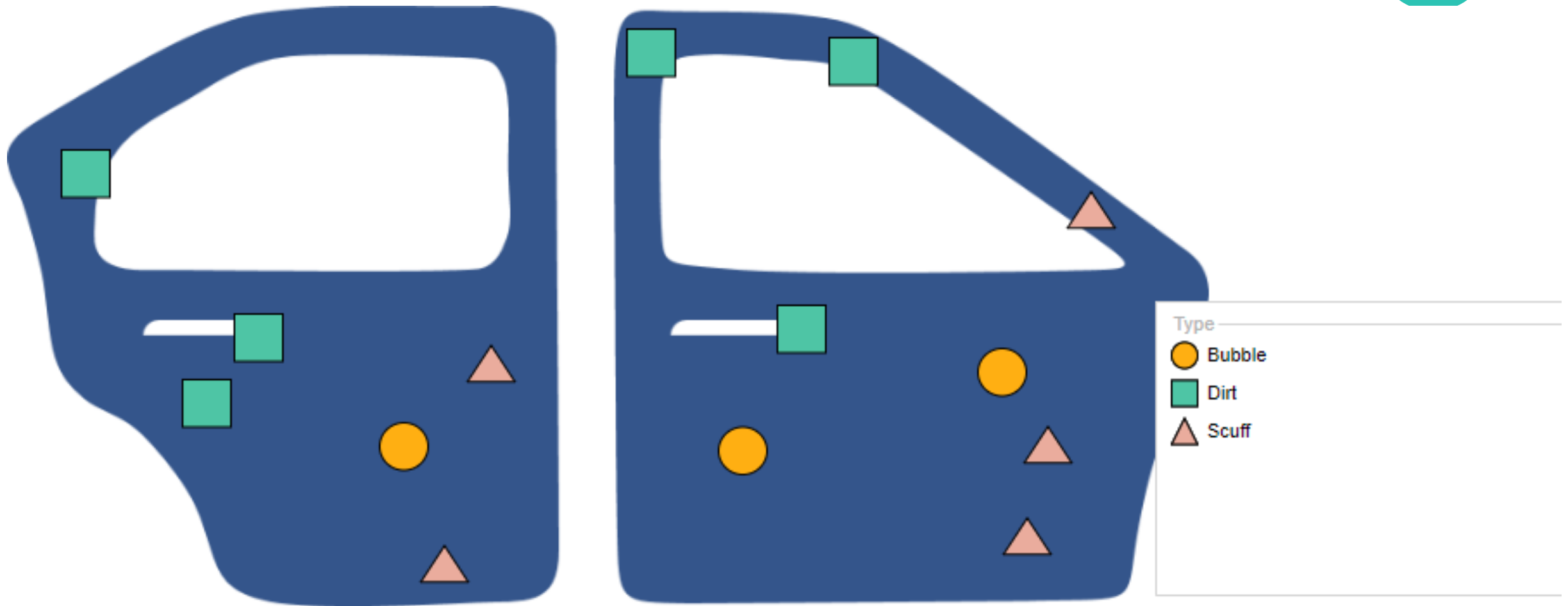
- Correlation, or relationship, not causation
- X-axis: Normally, your process input
- Y-axis: Your quality characteristic, or effect; your process output
- Set up a table like this for your raw data:

	Input (x)	Output (y)
1	63	98.9
2	60	98.8
3	49	98.53
4	40	98.35
5	45	98.55
6	45	98.95

Patron Visits/ Door Count



Temperature



# Problem Concentration Diagram

# Five Whys

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

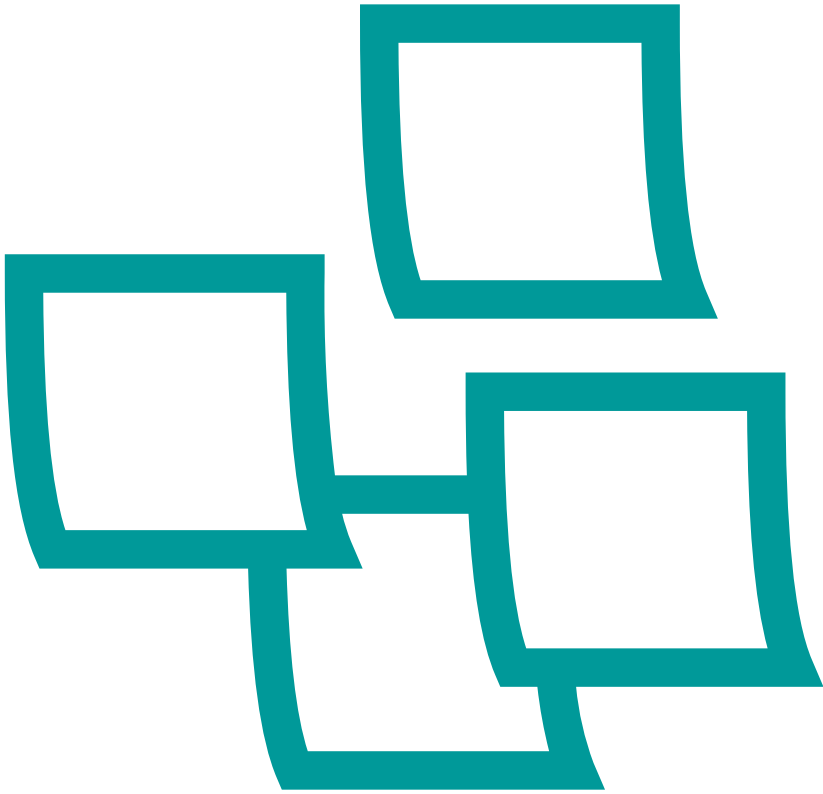


# Let's Try the Five Whys



- **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 chat, let's do this together! I'll ask 'why' five (or more!) times to arrive at what you think is the root of the problem. Why did the problem occur? We'll pick *one* possible reason at first and delve; it's not about brainstorming five possible reasons. You'll see!

# Why were there no Post-its® notes?



I'll type...

- 1.
- 2.
- 3.
- 4.
- 5.

# Additional Tools

**Documentation** - to understand the process and its requirements

**Records** - to verify the outputs of the process

**Interviewing** - to get the undocumented info about processes or practices that diverge from procedures

**Flowcharting** - to understand the process





# Considerations

Topic Four



# How deep should you dive?



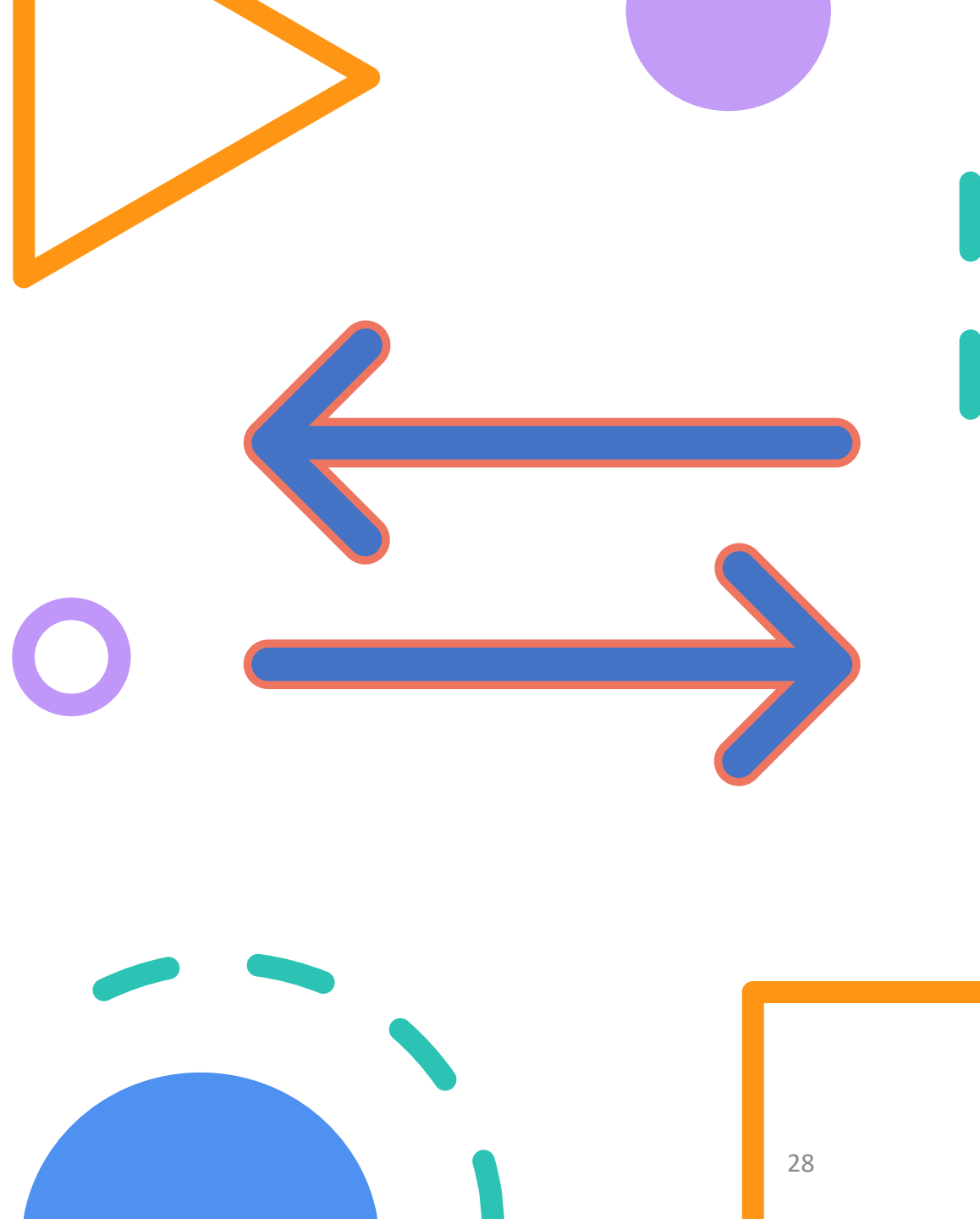
# Two Examples

<b>Symptom</b> ↑	Toast is burned	Check from insurance company reimbursing for healthcare services received overseas is for the incorrect amount
<b>Physical cause</b> ↑	Toaster did not eject bread when timer expired, due to excess buildup of bread crumbs in mechanism	Agent made error when manually calculating exchange rate conversion
<b>System cause</b> ↑	No process for cleaning toaster at regular intervals	Software used for handling claims does not allow use of foreign currency transactions

**Figure 2.1** Differentiating between symptoms and causes (physical and system).

# Beware

- “The cause of a problem may be concealed in a process that is two or three steps removed from the point where it was discovered.” (Root Cause Analysis, p ix)
- Problems can have more than one cause



# The People Factor

“If you regularly ignore or exclude individuals and/or departments from the problem-solving process, you disenfranchise them from the opportunity to participate...(Excluding individuals) is also detrimental to the goal of continual improvement” (Root Cause Analysis, p30)



# RCA Resources

Topic Five



# A Couple of Resources

ASQ Pocket Guide to Root Cause Analysis, Bjørn Andersen and Tom Natland Fagerhaug, Quality Press, Milwaukee, WI, 2014

Root Cause Analysis: Basic Tools and Techniques, Denise Robitaille, Paton Press LLC, Chico, CA, 2004



Thank you

[jane.martel@comcast.net](mailto:jane.martel@comcast.net)