



Root Cause Analysis for Fixes that Stick

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Today's Challenge...

A facility has:

- ✗ Repeated violations
- 🔍 Multiple inspections & monitoring events with the same outcome
- 📉 No lasting improvement



Today's **Solution**

**By the end of this session,
you'll know how to:**

- ✓ Define the real problem
- ✓ Identify likely causes
- ✓ Gather the right data
- ✓ Find the root cause
- ✓ Select a fix that sticks



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Audience Poll

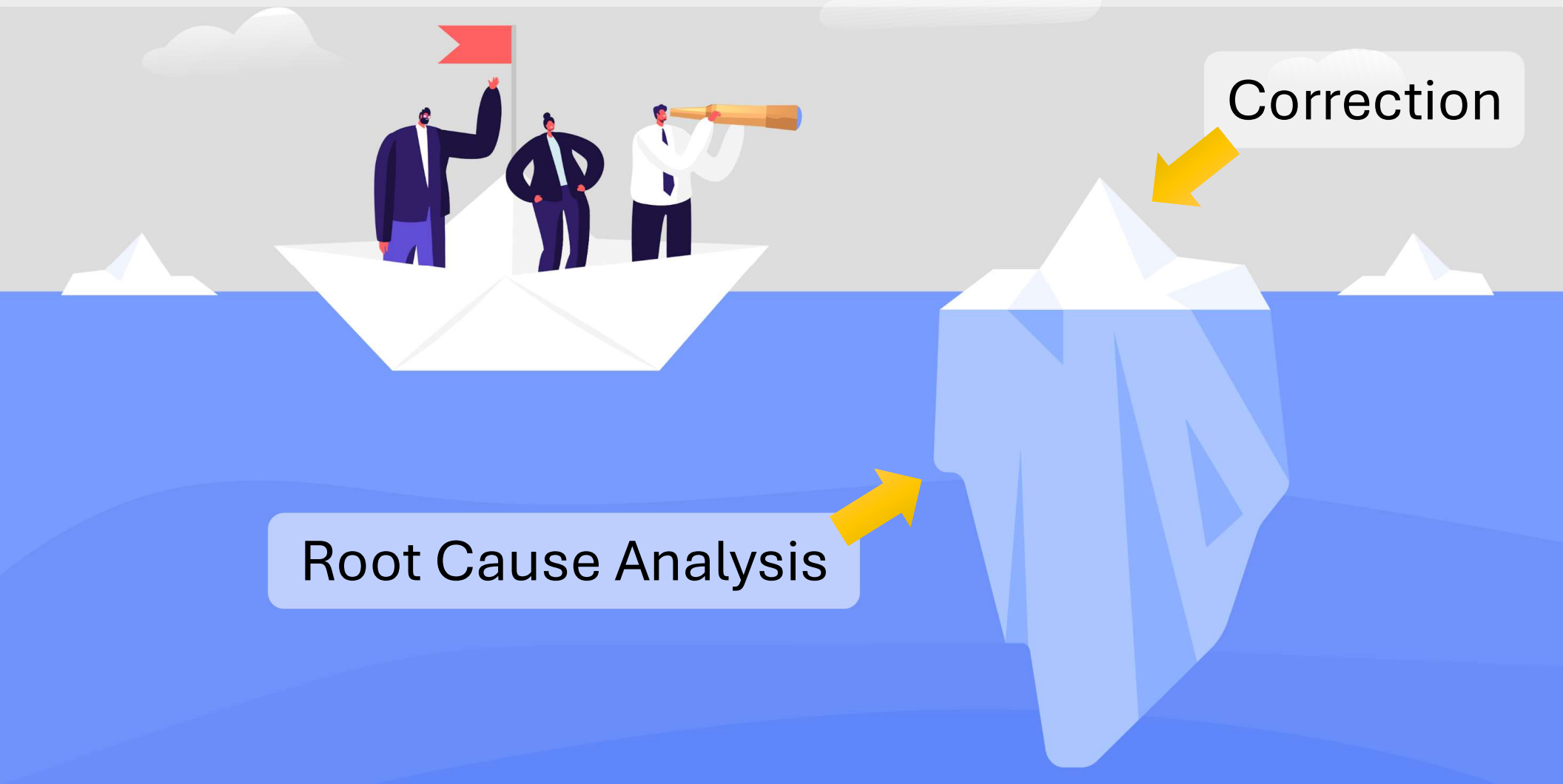
When you see a repeat violation, what usually happens?

- A. It gets corrected
- B. We repeat education
- C. Enforcement escalates
- D. We investigate the root cause

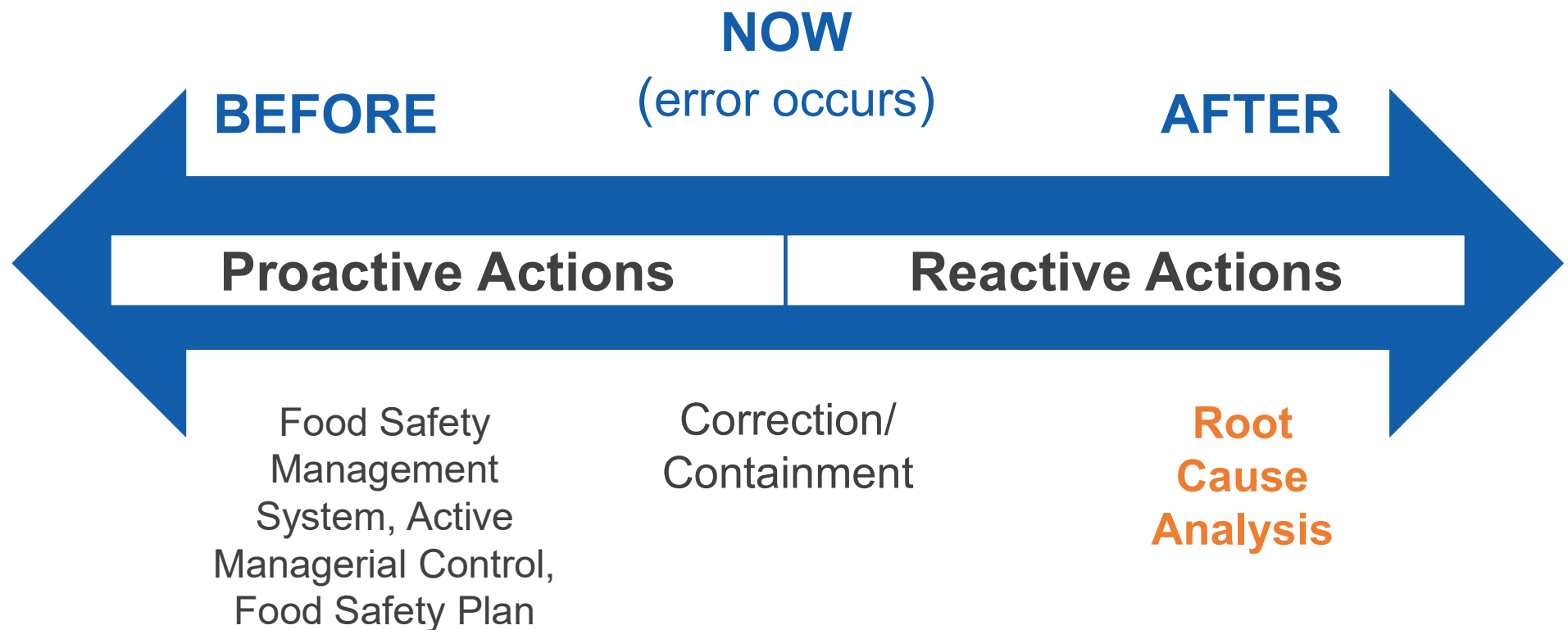
If the **same** violation keeps showing up, maybe we're solving the **wrong problem**.



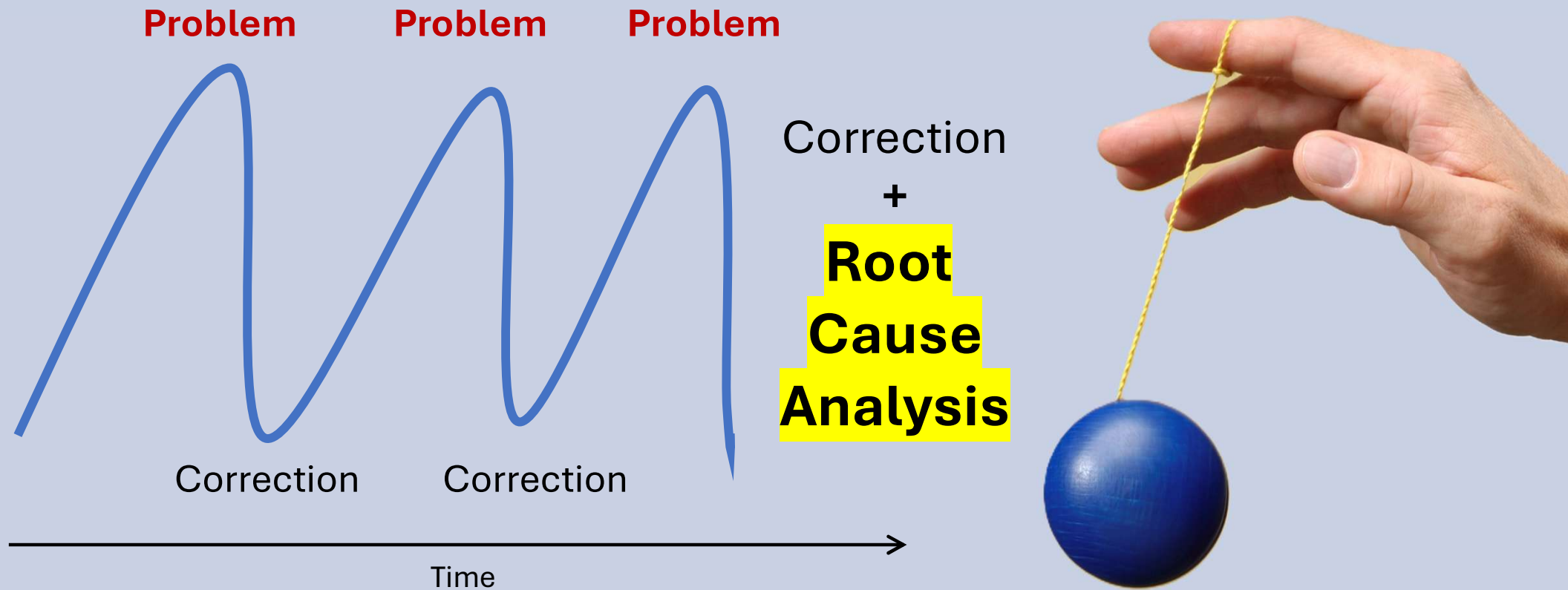
Correction vs. Root Cause Analysis



Problem-Solving Terminology



Root Cause Analysis Prevents Tomorrow's Problem



PPEEF: Sources of Variation



Field Guide to Identifying Root Causes



People

Process

Economics

Equipment

Food

Audience Poll: Which source do regulators tend to focus on first?

People 

Process

Economics

Equipment

Food



Audience Poll: Which source do businesses tend to focus on first?

CR1

People

Process

Economics

Equipment

Food



The DO IT² Problem Solving Model



1. Define the Problem
2. Understand the Process
3. Identify Possible Causes
4. Collect Data
5. Analyze the Data



6. Identify Possible Solutions
7. Select Solution(s) to be Implemented
8. Implement the Solution(s)
9. Evaluate the Effect(s)
10. Institutionalize the Change

* IT means root cause of the problem!

Don't jump right to solutions!



Take time to diagnose the problem

Meet Today's Case

Problem: Chicken salad in the cooler at 51° F

Out-of-temp salad has been repeatedly observed.



A person with long dark hair, wearing a dark blue top and a silver watch, is sitting at a desk. They are holding a wooden pencil and writing in an open notebook. To their right is a laptop. The background is blurred, showing some greenery. A semi-transparent dark rectangle is overlaid on the image, containing the text "Step 1: Define the Food Safety Problem" in white.

Step 1: Define the Food Safety Problem

The Problem Statement

- ? What happened or didn't happen?
 - ? Where?
 - ? When?
 - ? How much, how often?
-
- ✓ Use measurable, factual data
 - ✗ Do not include possible causes

Poor Problem Statements

- Chicken is out of temperature.
- The cooler isn't working.

Good Problem Statements

✓ What happened or didn't happen?

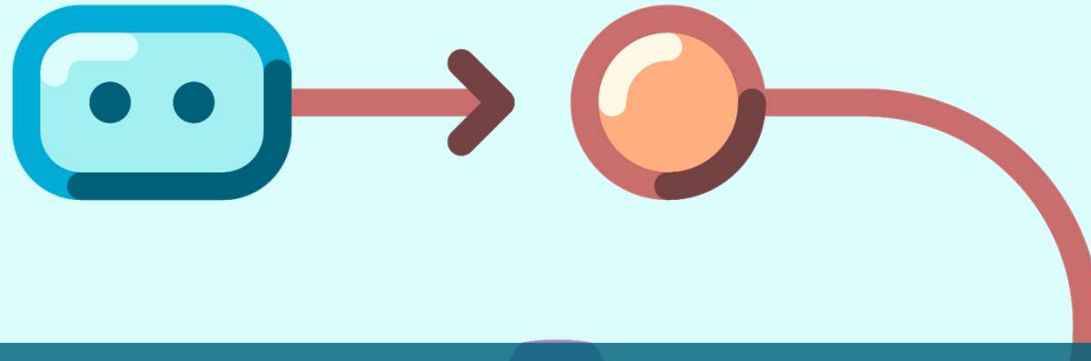
✓ Identify where and when

✓ How much

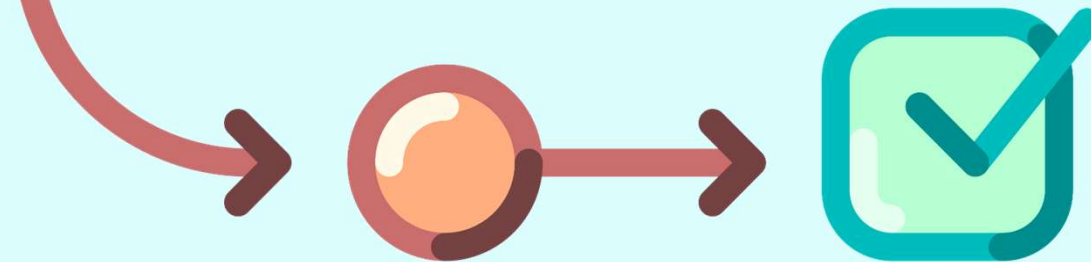
✓ Use measurable, factual data

✗ Do not include possible causes

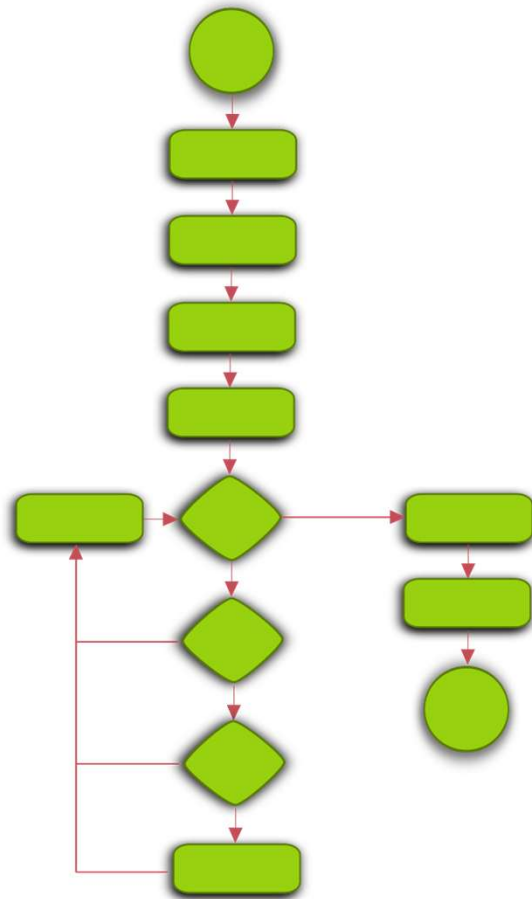
- At 10:00am, two 12" deep pans of rice cooked the night before were observed in the reach-in cooler at 50°F.
- In the salad prep cooler, the temperature of chicken salad in the serving pan on the top of the unit was at 51°F during the inspection at 1:35pm.



Step 2: Understand the Process (Food Flow)



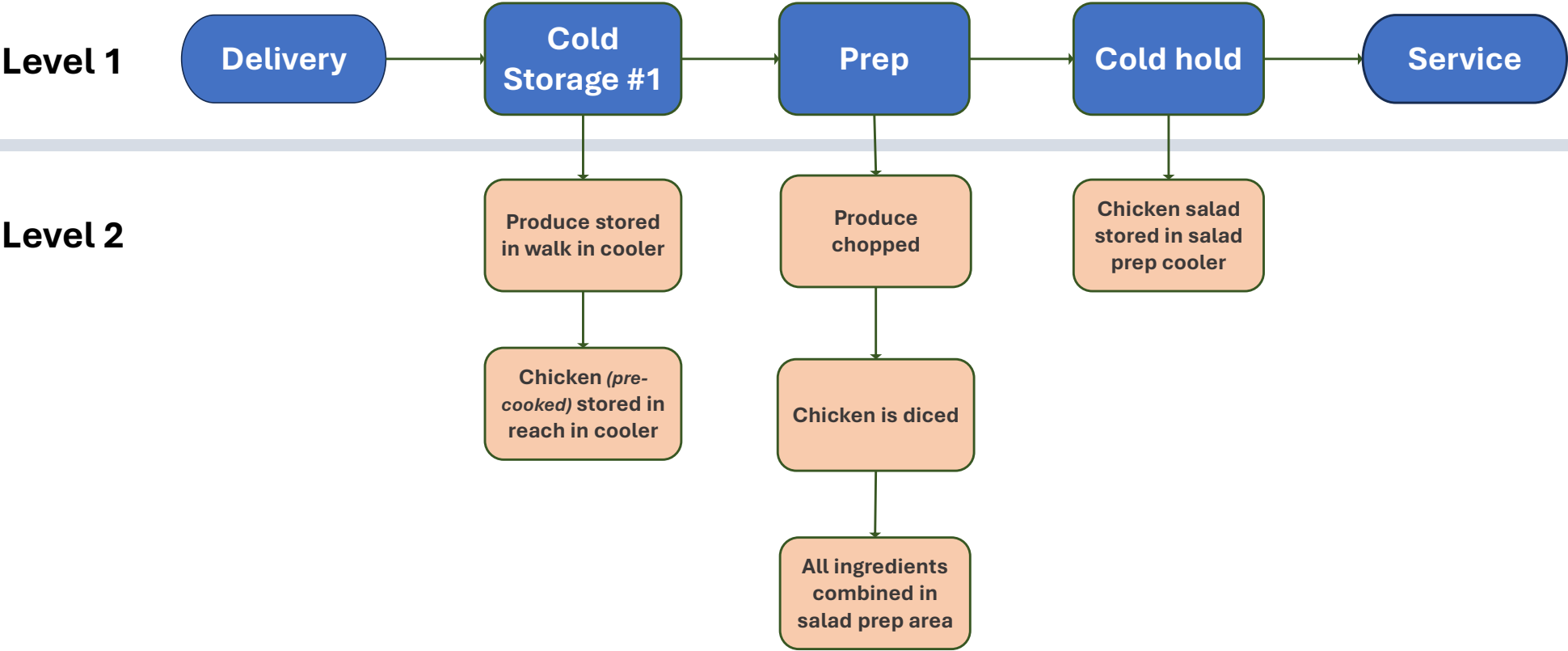
Using Flowcharts to Understand the Process



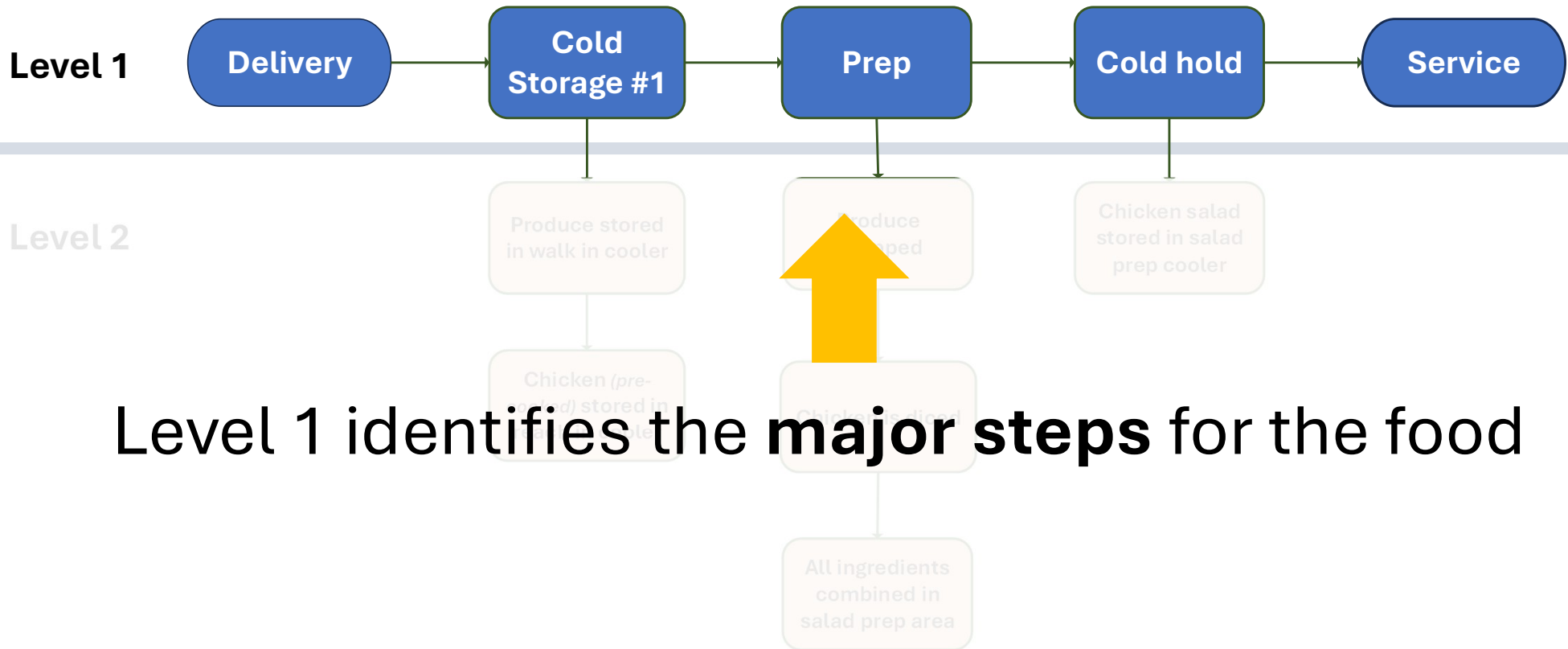
*Before we ask **why** something failed,
we need to understand **how** it's
supposed to work.*

- All problems are a result of a **process** that is part of a **system**
- The process is part of a larger system, interacting with other processes & systems

CHICKEN SALAD

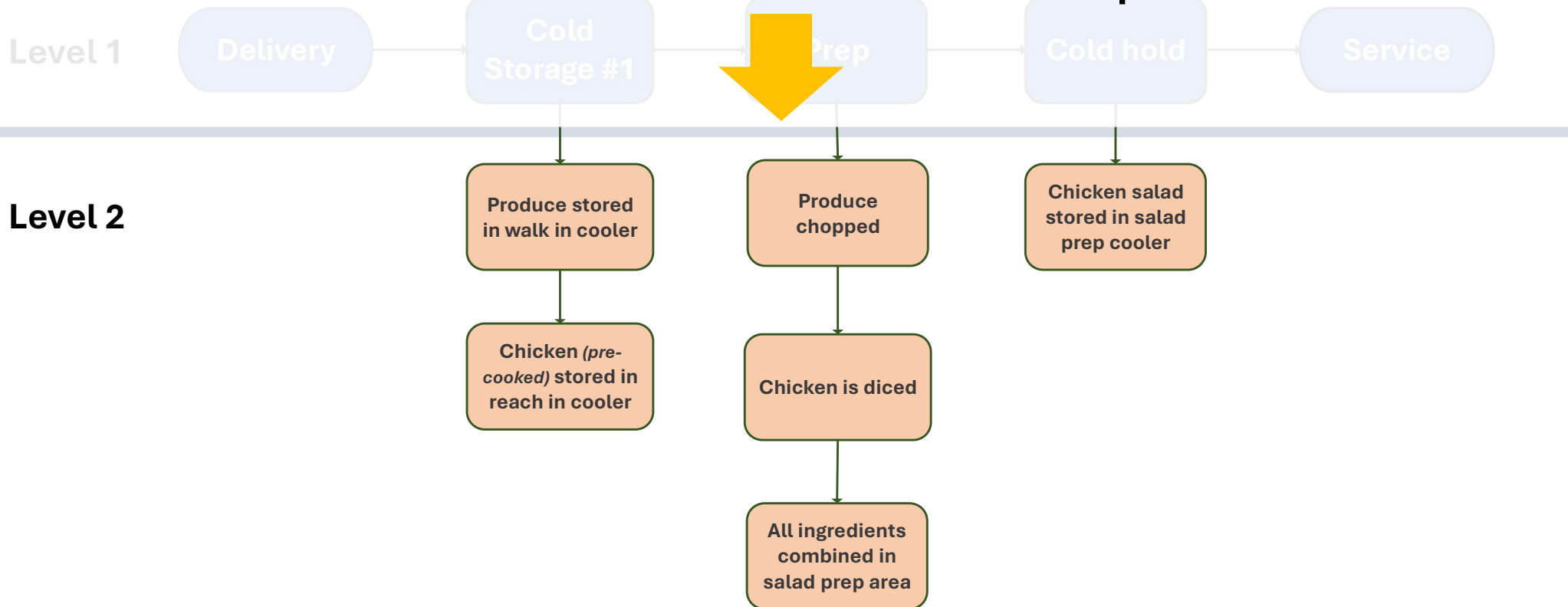


CHICKEN SALAD



CHICKEN SALAD

Level 2 details each step



A row of seven blue doors set into a yellow wall. The central door is open, revealing a white interior. The other six doors are closed. A semi-transparent blue horizontal band is overlaid across the middle of the image, containing white text.

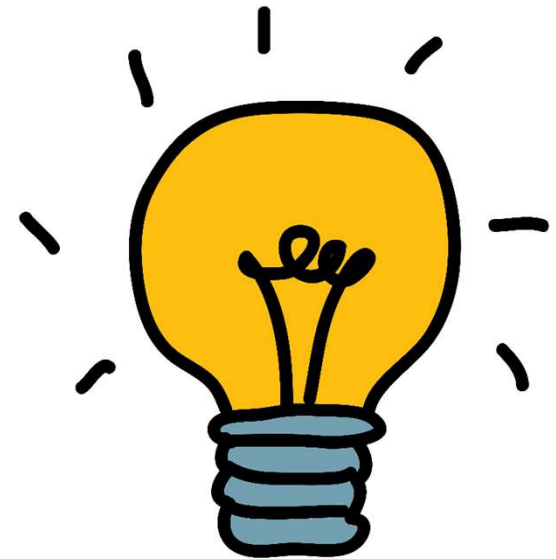
Step 3: Identify Possible Cause(s) (Develop Hypothesis)

Methods for Identifying Contributing Factors



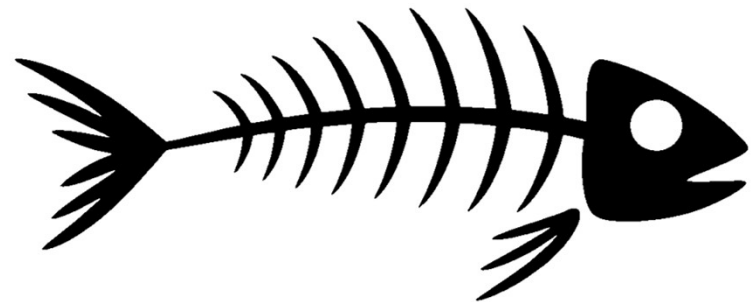
(1) Brainstorming & Hypothesis-Generating

- *Used to generate possible explanations.*
- *Good for outside-the-box thinking.*

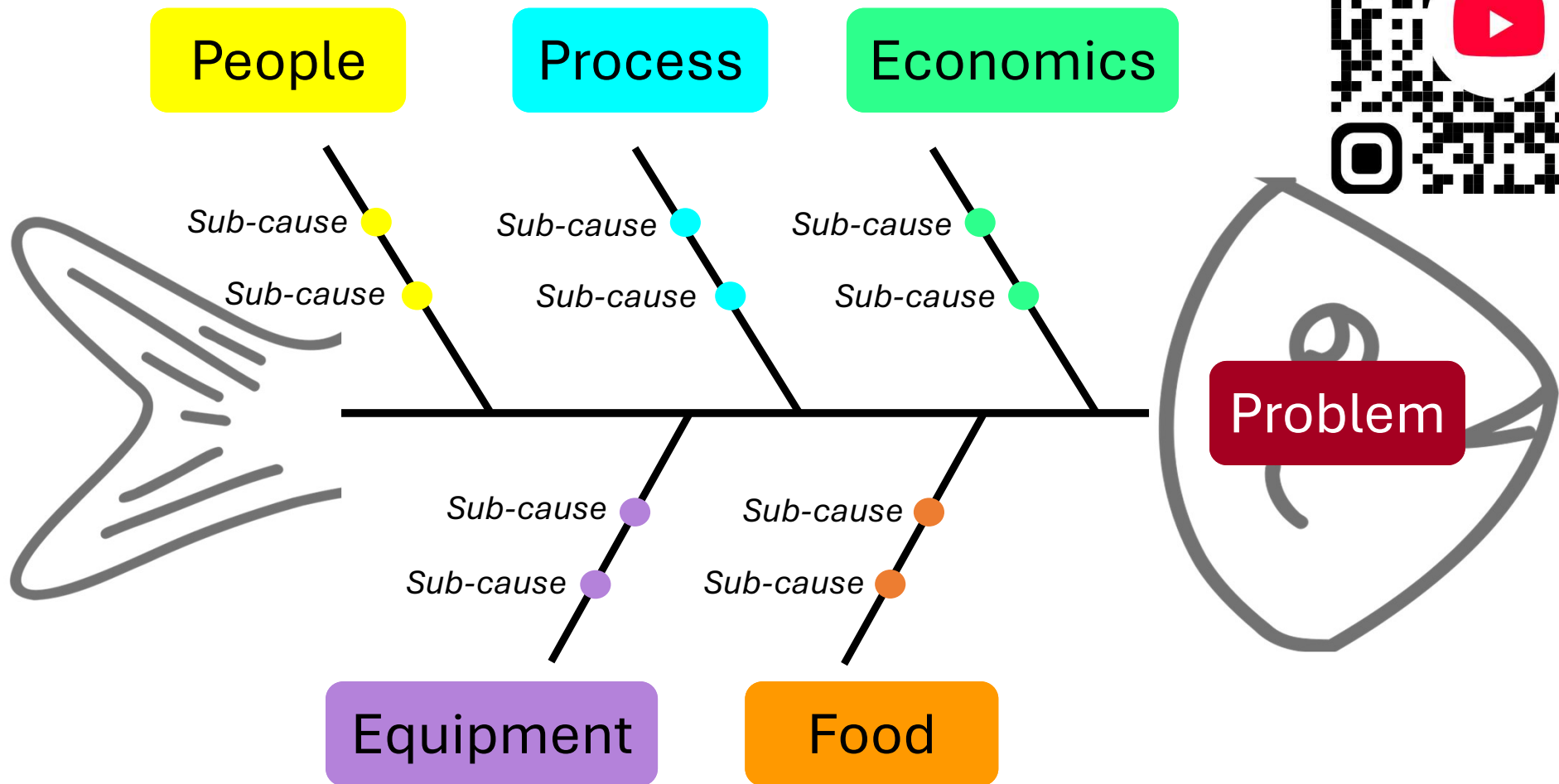


(2) Causal Analysis: Fishbone Diagram

- *Organizes possible causes into logical categories.*
- *Allows you to consider multiple contributing factors.*



Fishbone Diagram



(3) 5 Whys/How

- *Repeatedly asks "why" or "how" to move beyond symptoms and understand underlying system factors.*
- *Drill down from symptom to cause.*



5 Whys/How

Employees not washing hands after handling raw foods.

Problem Statement

HOW?

Employees moved directly from food preparation tasks to ready-to-eat food preparation.

WHY?

Because they were trying to complete multiple tasks without leaving their stations.

WHY?

Because the handwashing sink was located across the kitchen.

WHY?

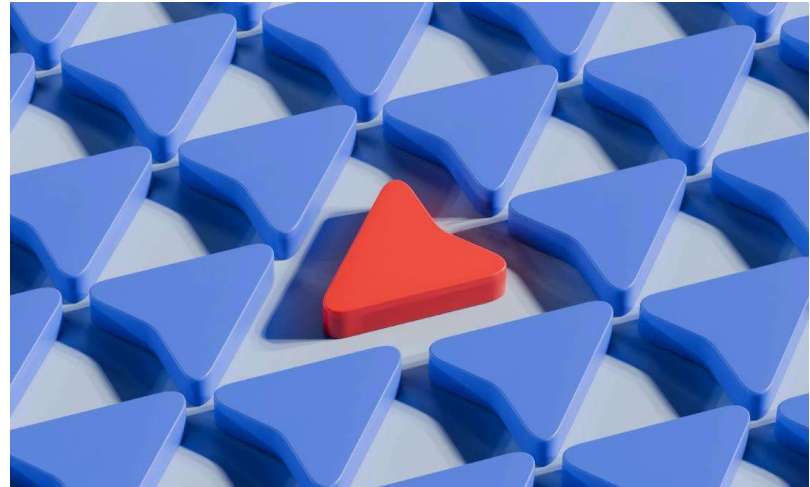
Because the prep line was expanded and workflow changed.

WHY?

Because food safety impacts were never evaluated during the redesign.

(4) Change Analysis

- *Compares a process that is failing to one that worked previously to determine what changed.*
- *Compare what changed and when.*

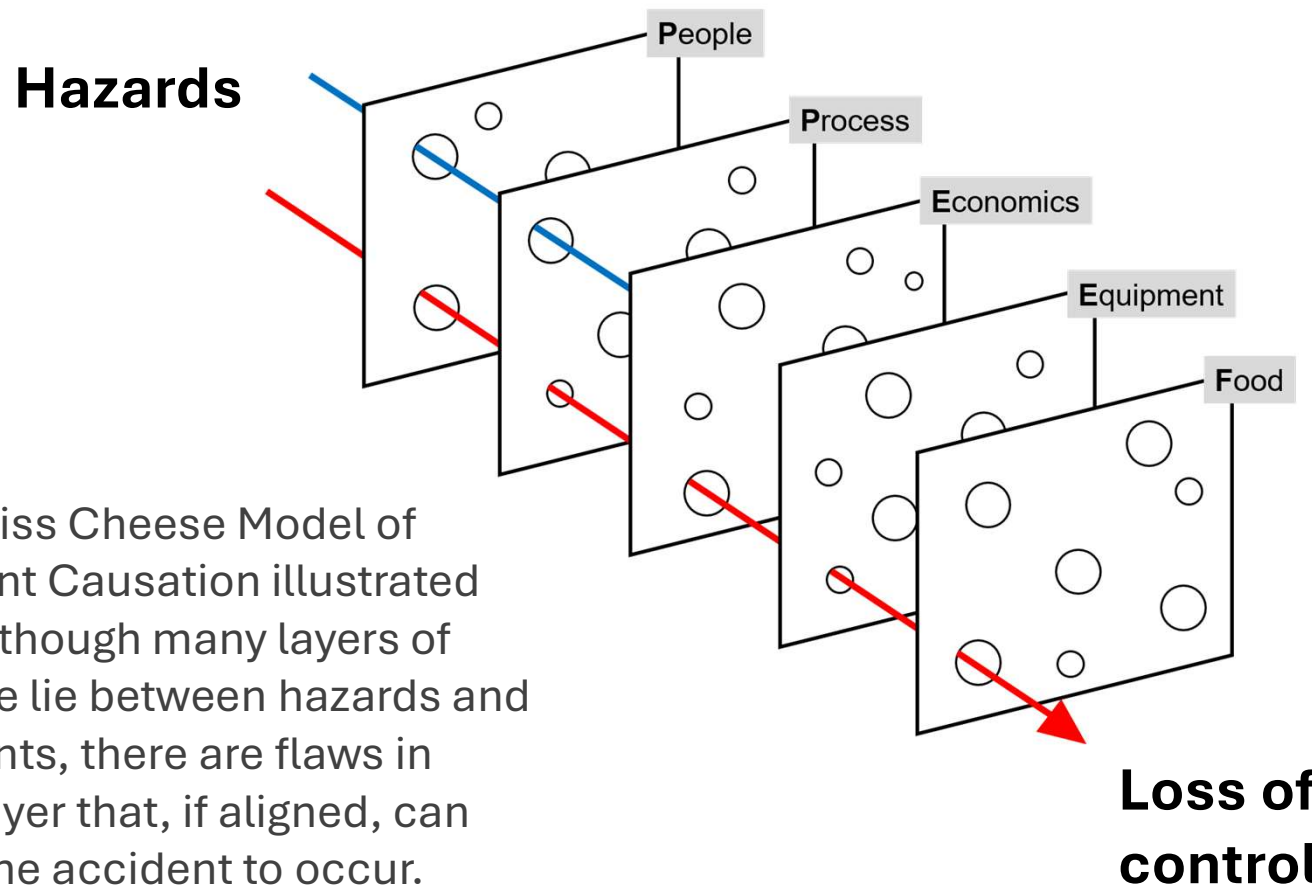


(5) Barrier Analysis

- *Examines the controls intended to prevent or detect a problem and where those protections broke down.*
- *Identifies failed or missing controls.*



Barrier Analysis: Swiss Cheese Model of Accident Causation

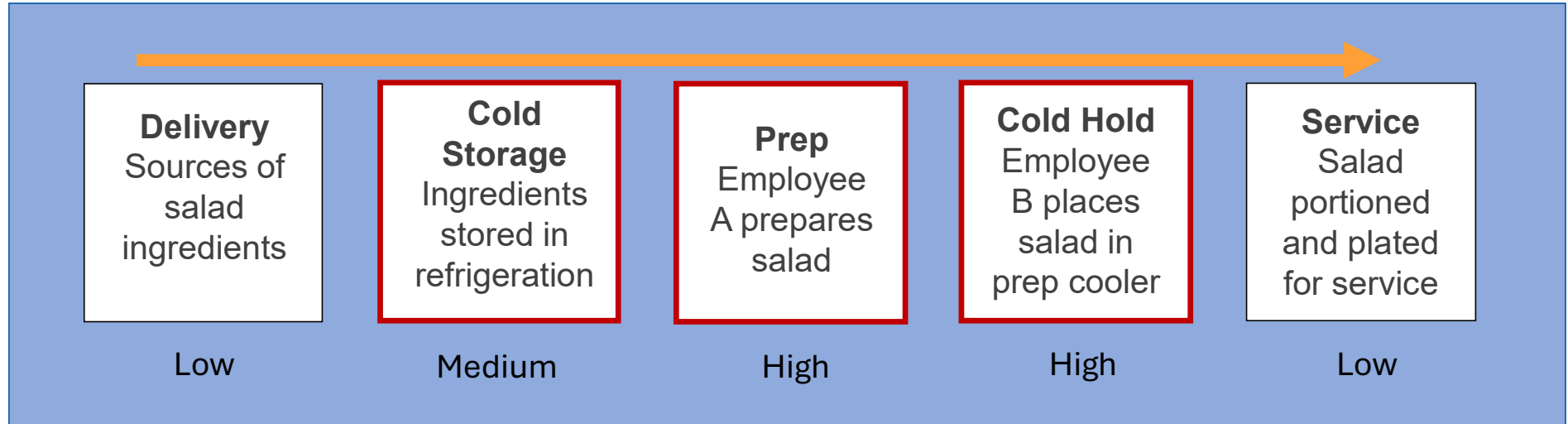


The Swiss Cheese Model of Accident Causation illustrated that, although many layers of defense lie between hazards and accidents, there are flaws in each layer that, if aligned, can allow the accident to occur.

Food Flow: Rank the Likelihood of Mishap at Each Step

Problem Statement

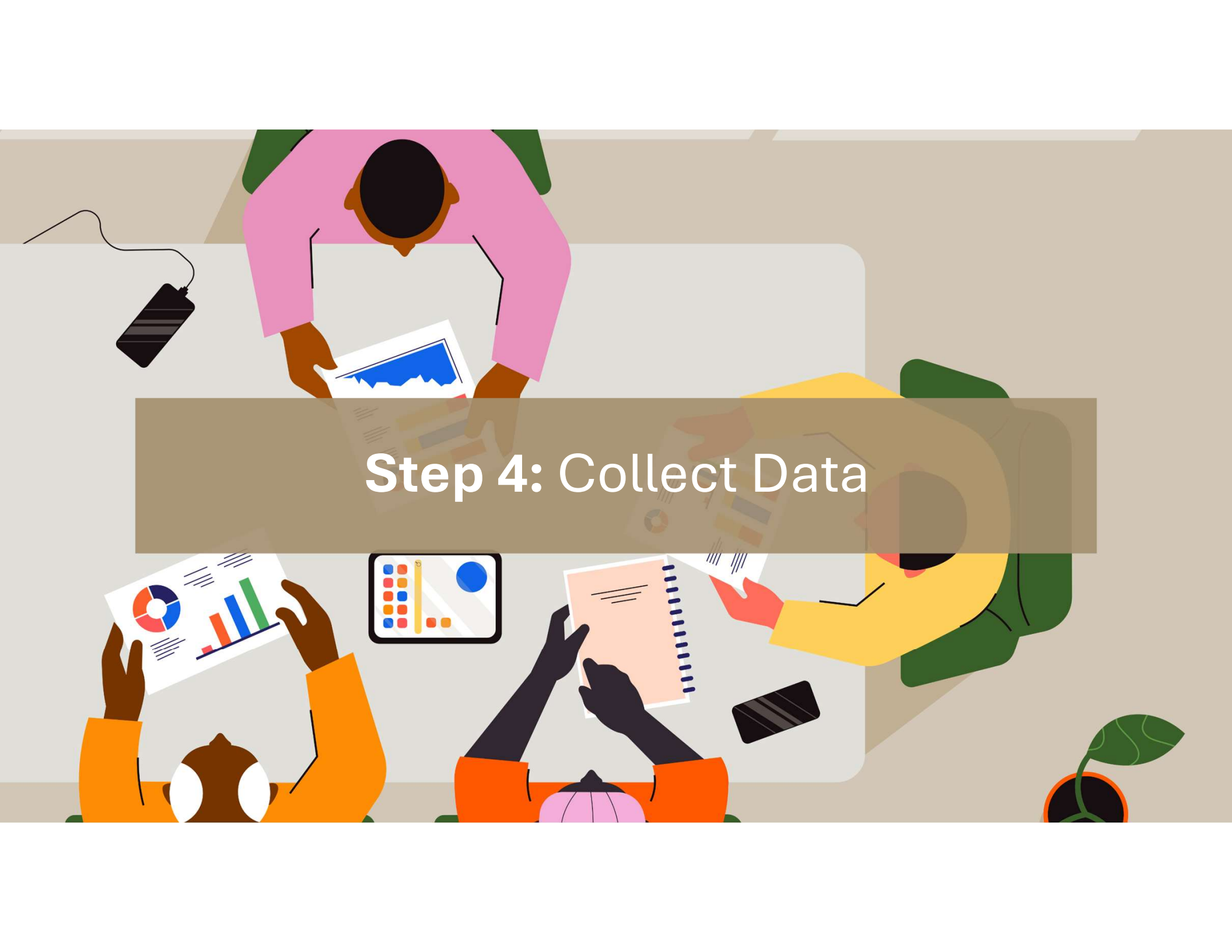
In the salad prep cooler at 1:35 pm, the temperature of chicken salad in the hotel pan was at 51°F.



Focus on the Most Likely Causes

- There are usually **many** possible causes for any problem.
- Reduce the data that must be collected.
- Quicker or more efficient results.

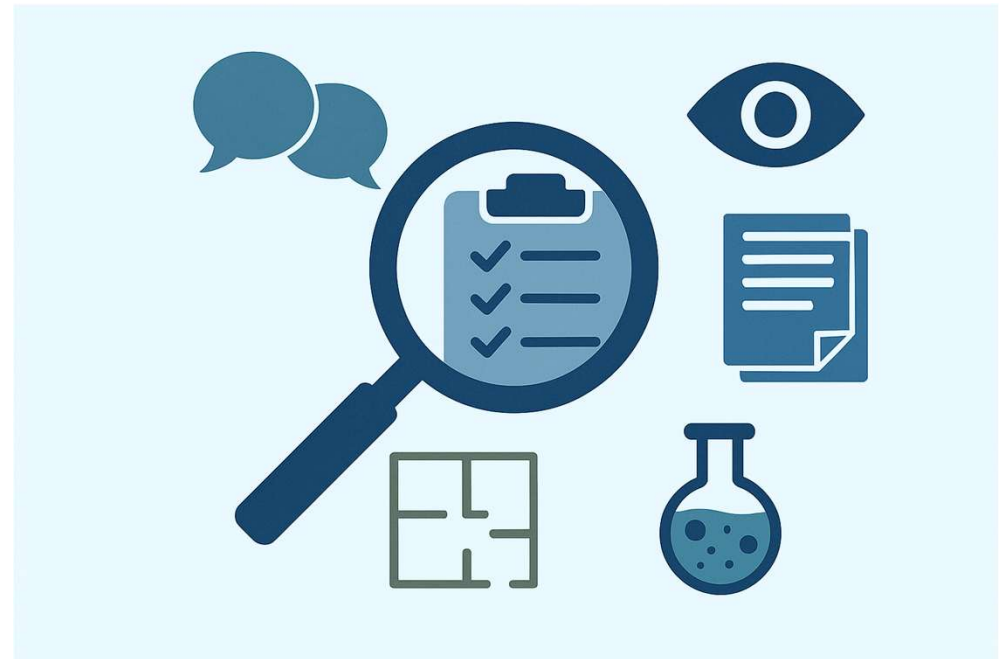




Step 4: Collect Data

Collect Data to Confirm or Eliminate Causes

- Create and execute a Data Collection Plan
 - Interviewing
 - Observation
 - Records
 - Facility Layout
 - Sampling



Interviewing

- Establish rapport
- Start general and move to specific
- Include both open-ended and fact-finding
- Confirm info with multiple sources



Additional Data Collection Tips

- **Observation:** Take your time to observe normal activity. Then you can compare what employees said happened to what you actually observed.
- **Records:** HACCP plans, inspection reports, menus, logs, invoices, past inspections.
- **Facility Layout:** Map out food flow (raw and RTE) and people flow. Gives good data on where potential problems could occur. It also gives you a plan on where to collect samples, if applicable.

A 3D bar chart with orange and blue bars of varying heights on a light gray grid background. A dark blue horizontal bar is overlaid across the middle of the chart.

Step 5: Analyze the Data

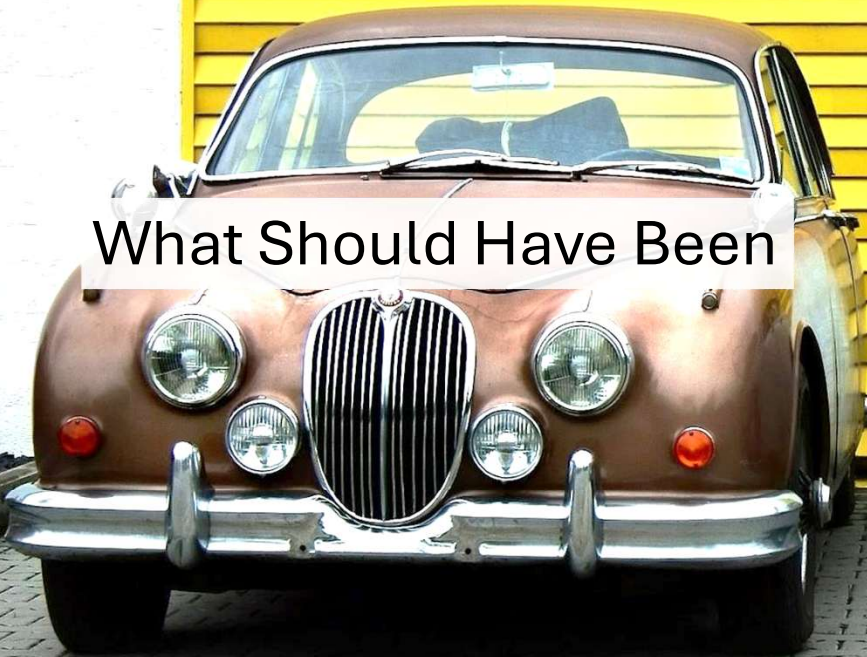
Process for Data Analysis

- **Pattern Analysis:** Group data and conduct a pattern analysis
 - Time
 - Location
 - Equipment
 - Staff & their roles
 - Food
- **Error Analysis:** Look for what's right first, making it easier to spot what's wrong



Expected vs. Actual: Finding the Gap

What Should Have Been



What Actually Happened

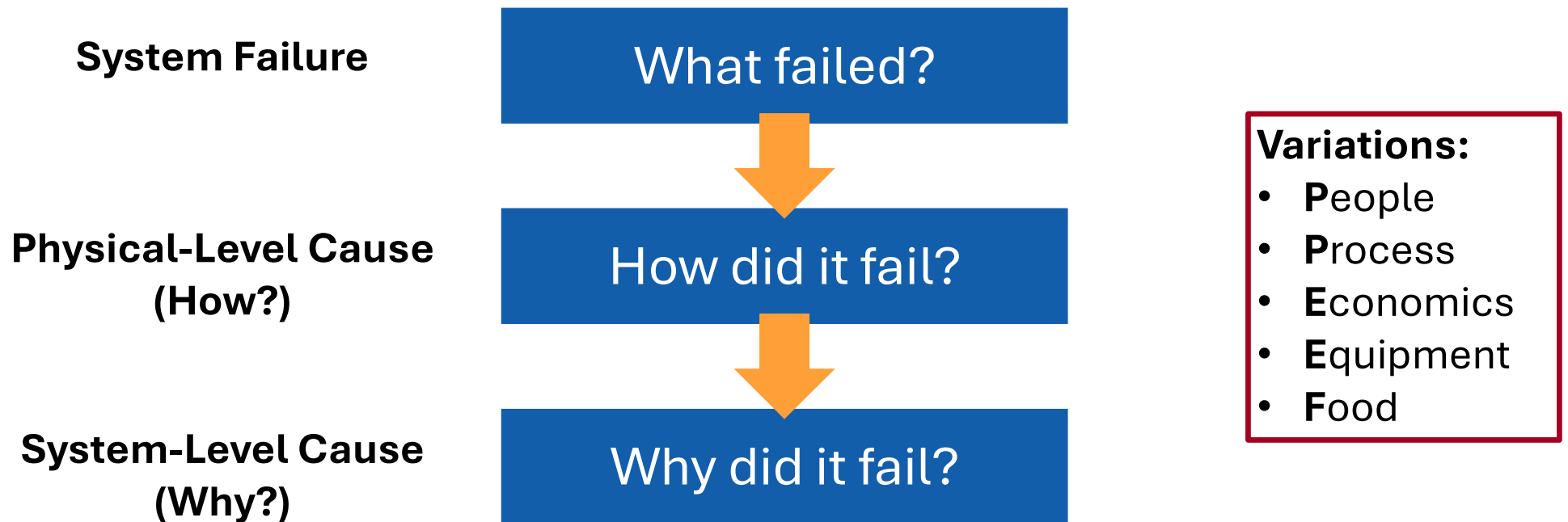


Back to Our Case

- The number of deliveries was reduced to cut costs
- When they run out of pre-cooked chicken, they substitute grilled chicken they cook from fresh
- Prep cook sometimes doesn't follow the recipe when cooking fresh chicken



Drilling Down to Root Cause



Audience Poll: Which is the root cause of the out-of-temp chicken salad?

People

Process

Economics

Equipment

Food



An illustration featuring a person with dark hair in a bun, wearing a yellow long-sleeved shirt and dark blue pants, sitting on a blue horizontal bar and working on a laptop. Behind them are two large, light yellow gears. To the right, a blue circular icon contains a white wrench. Below a central green horizontal band, there are two toolboxes: a yellow one with blue straps on the left and a blue one with yellow straps on the right. A large blue wrench is positioned diagonally across the center. On the right side, a person in a blue shirt and yellow pants is walking, carrying a blue toolbox. The entire scene is set against a background of green foliage and a light orange ground.

FIX IT: Solution Phase

The DO IT² Problem Solving Model

FIND IT*
Diagnostic
Phase

1. Define the Problem
2. Understand the Process
3. Identify Possible Causes
4. Collect Data
5. Analyze the Data

FIX IT*
Solution
Phase

6. Identify Possible Solutions
7. Select Solution(s) to be Implemented
8. Implement the Solution(s)
9. Evaluate the Effect(s)
10. Institutionalize the Change

* IT means root cause of the problem!

Step 6: Identify Possible Solution(s)

- ✓ Creative Thinking
- ✓ Mistake Proofing
- ✓ Basics of Biology, Chemistry, Physics, and Behavioral Science
- ✓ Benchmarking
- ✓ Risk Control Plan

Step 7 – Select Solution(s) to Implement

Considerations

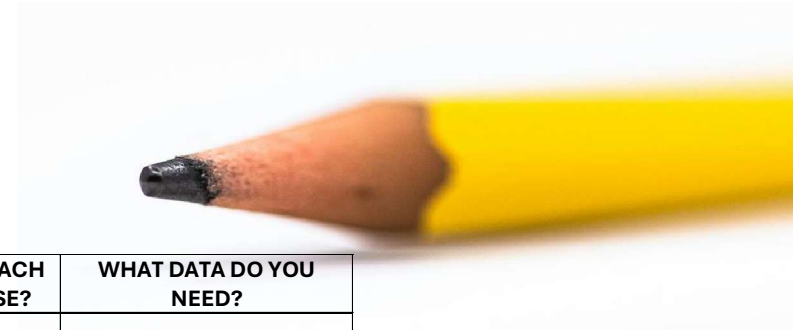
Methods

**Performance
Measures**

Goal: Long-Term Behavioral Change



Time to Practice!



ID	SCENARIO TITLE	BRIEF DESCRIPTION	WHY IS THIS ISSUE IMPORTANT?	HOW WOULD YOU APPROACH FINDING THE ROOT CAUSE?	WHAT DATA DO YOU NEED?
A	Why Are Follow-Ups Always Late?	Follow-up inspections for priority violations are not consistently completed within required timeframes.			
B	Why Are We Still Seeing the Same Violations?	The same top risk-factor violations have remained unchanged for years despite inspections, education, and enforcement.			
C	Why Do Similar Facilities Receive Different Inspection Results?	Program audits reveal significant variation in findings among inspectors inspecting similar establishments.			
D	Why Are Complaint Investigations Backlogged?	Consumer complaint investigations routinely exceed target completion dates.			

ID	Scenario Title	Brief Description	What People Initially Think	Actual Root Cause Contributing Factors	Ultimate Root Cause
A	Why Are Follow-Ups Always Late?	Follow-up inspections for priority violations are not consistently completed within required timeframes.	Inspectors are disorganized; supervisors aren't monitoring activities.	Different tracking methods; no standard follow-up workflow; reliance on personal reminders and spreadsheets.	Process: No standardized tracking and prioritization system.
B	Why Are We Still Seeing the Same Violations?	The same top risk-factor violations have remained unchanged for years despite inspections, education, and enforcement.	Operators aren't listening; inspectors need stronger enforcement.	Focus on documenting violations rather than investigating causes; limited trend analysis; corrective actions focus on individual events.	Process: Program focuses on correction rather than root-cause prevention.
C	Why Do Similar Facilities Receive Different Inspection Results?	Program audits reveal significant variation in findings among inspectors inspecting similar establishments.	Some inspectors are stricter; some inspectors are missing violations.	Limited calibration exercises; infrequent field standardization; inconsistent interpretation of requirements.	Process: Insufficient inspector calibration and standardization system.
D	Why Are Complaint Investigations Backlogged?	Consumer complaint investigations routinely exceed target completion dates.	Staff are overloaded; there are not enough investigators.	Complaints arrive through multiple channels; no risk-based triage process; high-risk and low-risk complaints handled similarly.	Process: Lack of a standardized complaint prioritization and triage system.



Upcoming AFDO Training

Root Cause Analysis for Retail Food Safety

Four 4.5-hour virtual sessions

September 28, 2026
– October 2026

Registration is open



