



5-Why Training for Industry

DMAICTools.com

Image Source: Dassault Systems

*World class industrial robots, printers,
and machinery*



What is 5-Why?

- 5-Why is a problem-solving tool, *more importantly a way of thinking about problems.*
- 5-Why encourages us to keep asking “Why?” when addressing a problem, until the root cause is reached.
- The 5-Why format brings structure to problem solving.



Sakichi Toyoda, founder of Toyota Industries and creator of the 5-Why approach



Symptoms Vs Causes

Symptom

- A problem that comes to our attention
- We can usually “fix” symptoms *by returning things to normal*, like cleaning up this fluid leak and replacing the broken hydraulic line on the forklift



This hydraulic fluid leak is a symptom



Symptoms Vs Causes

Root Cause

- The root cause is the reason behind the symptom
- Fixing the root cause *will prevent similar symptoms (problems) from occurring in the future*



Getting to the root cause starts with an important question:

“Why did this happen?”



5 Why Example #1 – Hydraulic Fluid Leak

What Happened?



A large volume of hydraulic fluid leaked from a forklift

Why?



A hydraulic hose burst

Why?



We used the wrong hydraulic fluid, and it deteriorated the hose

Why?



The mechanic was not aware of which fluid to use

Why?

GENERAL MAINTENANCE MANUAL
TERRENE™ COLLECTION

General Maintenance and Specification Hints

- Parterre Flooring requires minimum and routine maintenance to retain its original "like-new" appearance and high-performance characteristics for many years.
- Various factors influence type and extent of a maintenance program for a given installation. Factors include: volume of foot traffic and rolling cart traffic to which flooring is exposed; standards of hygiene, cleanliness and appearance established by owner; type and extent of use.
- An ideal floor maintenance program includes:
 - Initial cleaning
 - Routine cleaning
 - Spot cleaning
 - Deep cleaning
- General Preventive Maintenance
 - Remove dirt and debris with a vacuum or broom.
 - Moisten floor with water and dishwashing detergent. DO NOT FLOOD OR OVERWET. REMOVAL MUST BE DONE WHILE WETT Dried epoxy cannot be removed without probable damage to the surface.

No Maintenance Manual

We have no written maintenance procedures



5 Why Example #1 – Effects of Each Added Corrective Action

Corrective Action for Each “Why?”



Replace the hose
Very limited benefit. Many more hydraulic hoses are waiting to burst.

Swap out the hydraulic fluid in all forklifts to the correct fluid.
Much greater benefit. We should not have any more lines bursting in the short term.

Train mechanics.
Still greater benefit. Mechanics will now double check the hydraulic fluid they are using.

Implement written maintenance procedures. **This will produce the greatest benefit, because it will benefit all equipment, not just forklifts.**

Symptom: Hydraulic fluid leak



A hydraulic hose burst



We used the wrong hydraulic fluid, and it deteriorated the hose



The mechanic was not aware of which fluid to use



We have no written maintenance procedures

1st Why



2nd Why



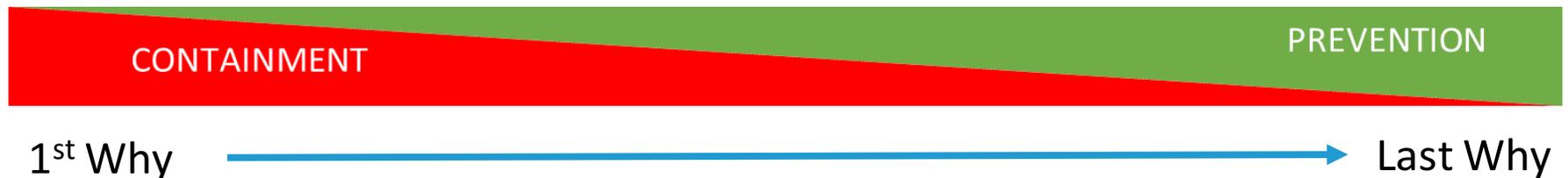
3rd Why



4th Why



Moving from Left to Right: Containment to Prevention



- As we move from left to right in 5-Why exercise, the resulting actions shift from containment to prevention
- We must often act on the “early Why’s,” to contain the situation to maintain operations, safety, customer satisfaction, etc.



5-Why Analysis and Action Summary

For instructions / training go to dmaictools.com

Completed by Susan Jennings (plant manager), Ray Blouin (maintenance), Rich Matthews (facilities), Ken Lime (Toyota Forklift Div)

Facility / Location Airbags, Phoenix 5-Why Completion Date 31-Jan 5 Why Ref # 20_01_A

Problem Statement **1st Why** **2nd Why** **3rd Why** **4th Why** **5th Why**

Starting with problem statement, ask why the problem occurred. Continue asking why until the root cause is reached.

Hydraulic fluid leak from forklift	Hydraulic hose burst	The hose had delaminated from the inside out	Wrong hydraulic fluid was used	Mechanics were not aware of the fluid requirement	We do not have written maintenance procedures
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Does action need to be taken, as a result of this finding?

	↓	↓	↓	↓	↓	↓
	Cordon off and clean floor where the leak occurred	Replace with new hose, get forklift back in operation	N/A	Change out fluid in all forklifts	Cover in shift huddles with all mechanics	Create maintenance procedures in shared folder and develop PM rollout plan for facility
Action owner	Jimmy Gaudreau	Ray Blouin	N/A	Ray Blouin	Rich Matthews	Rich Matthews
Target completion date	3-Feb	6-Feb	N/A	20-Feb	3-Feb	7-May
Current status	COMPLETE	COMPLETE	N/A	3 of 7 complete, on track	COMPLETE	On track, next update 3/18



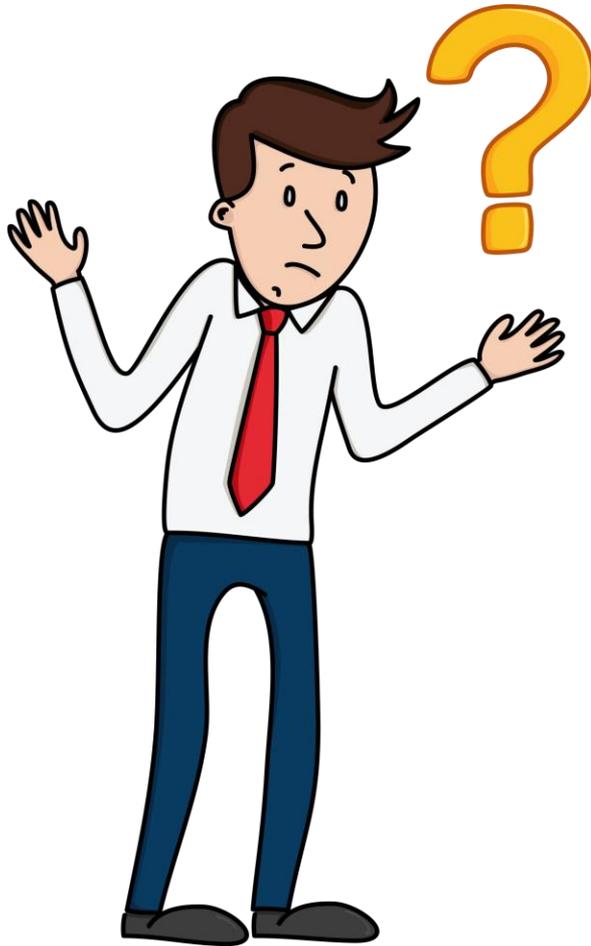
Exercise

Problem Statement: You lead a distribution team for an auto parts business. Customer Service just called and said that a very upset consumer received the wrong set of brake rotors with their order.

1. What steps would you take to investigate this situation?
2. Get creative and make up a story about how a 5-Why exercise might unfold.
3. Show how a team might have addressed a symptom and not the root cause.



Discussion



- In your experience, have you seen cases where fixing symptoms did not solve a problem? What happened?
- What can happen when a team gets in the habit of addressing symptoms and not root causes?
- What specifically can the effects be on customer satisfaction and cost?

