

# LeanOhio Boot Camp: Transforming the Public Sector

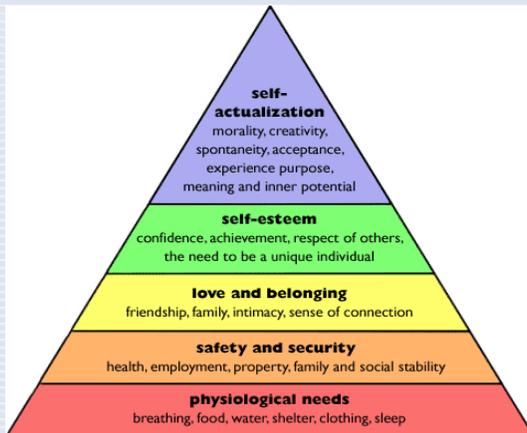


## Root Cause Analysis and Ishikawa

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## Maslow's Hierarchy



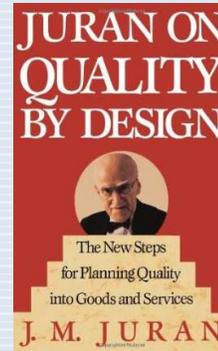
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## Juran's Classification of Customer Needs

The **customer needs** are complex and will fall into five classifications:

- Stated*
- Real*
- Perceived*
- Cultural*
- Unintended*



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## Root Cause Analysis

- Getting to the Root of the Problem!



Every problem is an opportunity.”

- *Kilchiro Toyoda, founder of Toyota*

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## Root Cause Analysis Definitions

- A root cause is a factor that causes a **nonconformance** and should be permanently eliminated through process improvement.
- Root Cause Analysis is a collective term that describes a wide range of approaches, tools, and techniques used to **uncover causes of problems**.

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## Root Cause Analysis



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## Root Cause Analysis

- Root Cause Analysis is all about getting to the root of the problem!

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## Root Cause Analysis

We want to make sure we are not treating the symptoms but curing the disease.

**Example: Takes to long to get permit.....everybody work faster!**

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## Root Cause Analysis Tools

Several Lean Six Sigma Root Cause Analysis Tools:

- 5 Whys
- Fishbone Diagram
- Pareto Chart
- FMEA
- SWOT: Strengths – Weaknesses – Opportunities - Threats

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why?  
why?  
why?  
why?  
why?

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## Five Whys

- 5 Whys: By repeatedly asking why you can peel away layers of symptoms to lead to root cause of a problem
  - Help ID Root Cause
  - Determine relationships
  - Simplest tools
  - Don't stop until you reach an answer that is fundamental

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## Five Whys Example

**Problem Statement:** You are on your way home from work and your car stops in the middle of the road.



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## Five Whys Example

- **1. Why** did your car stop?
  - Because it ran out of gas.



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## Five Whys Example

- **2. Why** did it run out of gas?
  - - Because I didn't buy any gas on my way to work.



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## Five Whys Example

- **3. Why** didn't you buy any gas this morning?
- - Because I didn't have any money.



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## Five Whys Example

- **4. Why** didn't you have any money?
- - Because I lost it all last night in a poker game.



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## Five Whys Example

- **5. Why** did you lose your money in last night's poker game?
- 
- Because I'm not very good at "bluffing" when I don't have a good hand.



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## Five Whys Example

- **1. Why** did your car stop?  
- Because it ran out of gas.
- **2. Why** did it run out of gas?  
- Because I didn't buy any gas on my way to work.
- **3. Why** didn't you buy any gas this morning?  
- Because I didn't have any money.
- **4. Why** didn't you have any money?  
- Because I lost it all last night in a poker game.
- **5. Why** did you lose your money in last night's poker game?  
- Because I'm not very good at "bluffing" when I don't have a good hand.



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## Classic Five Why Example

**Solution:** Stop playing poker?



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## 5 Whys and the Fishbone Diagram

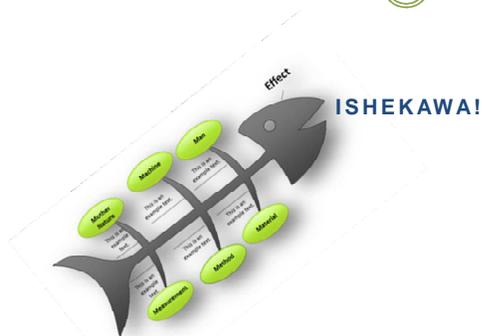
The 5 Whys can be used individually or as a part of the fishbone diagram.

“If you don’t ask the right questions, you don’t get the right answers. A question asked in the right way often points to its own answer. Asking questions is the ABC of diagnosis. Only the inquiring mind solves problems.” – Edward Hodnett

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# Fishbone Diagram



## Fishbone Diagram: What

- A **picture** of various system elements that may contribute to a problem
- Allows the **organization** of large amounts of information about the problem and its possible causes
- Creates a **snapshot** of collective knowledge about the problem

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## Fishbone Diagram: When/Why

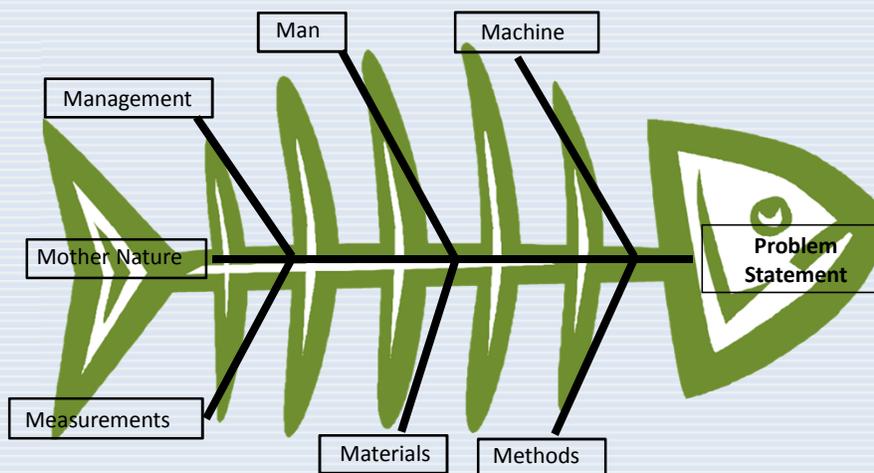
Use during *Define* to assess the current situation

- To identify possible causes of a problem
- To identify the most likely cause and discover root causes
- To ensure that all perspectives are looked at and nothing is overlooked
- To preclude jumping to solutions
- To move from opinion to testable theories

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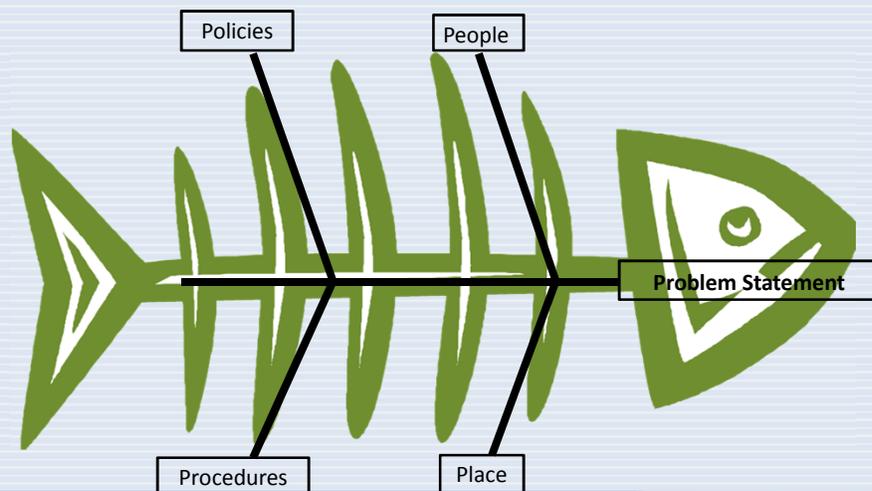
## Fishbone Diagram: How (7M's)



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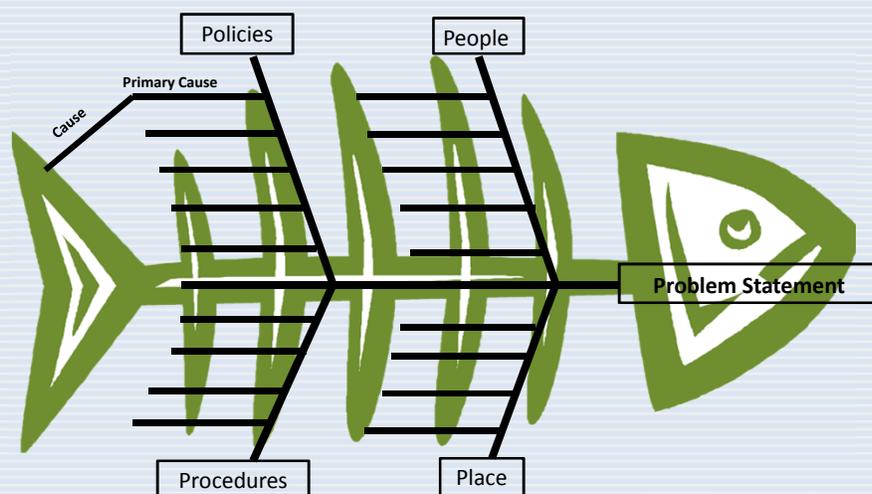
## Fishbone Diagram: How (4P's)



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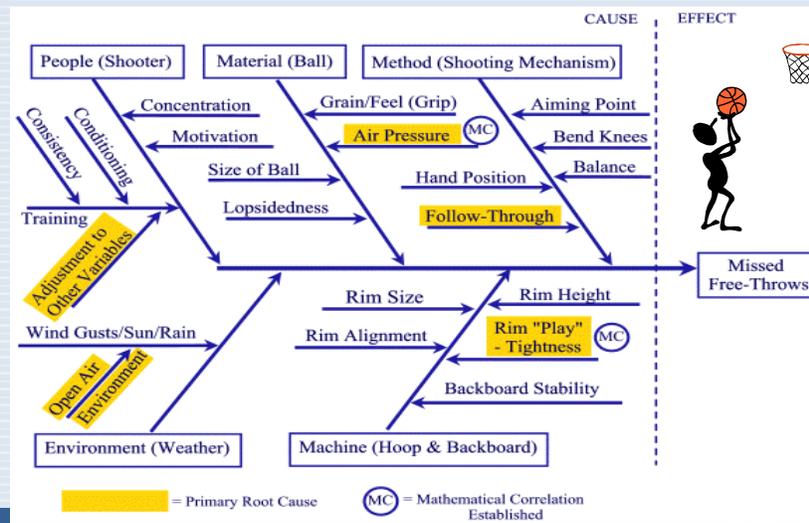
## Fishbone Diagram: Design



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## EXAMPLE



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## Fishbone Diagram: Analyze

Identify most likely cause candidates

- Causes that occur repeatedly
- Causes that have the biggest impact

Verify causes

- With data: Pareto Diagram, Run Chart, Histogram, Control Chart
- With others who work in or know the process
- That the causes actually produce the effect that you think they do

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## Fishbone Diagrams: Tips

- Use Fishbone Diagram on an on-going basis
- Identify contributing factors to each cause
- Dig deeply into causes of the causes
- Do multiple diagrams to get at the root cause
- Use data to verify
- **DON'T JUMP TO CONCLUSIONS!**



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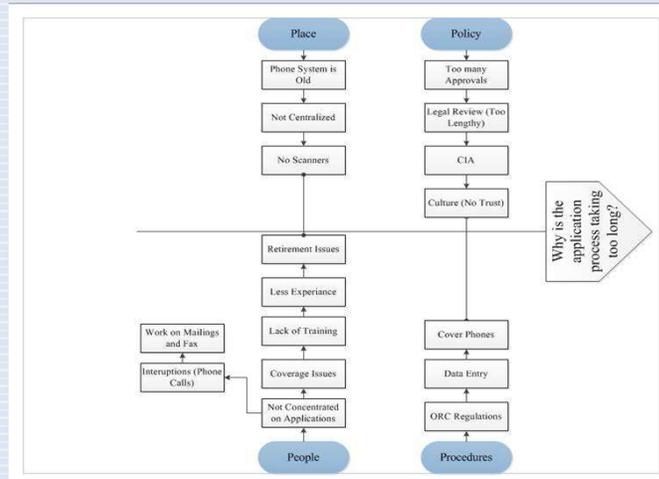
## Department of Prevention Example

**Problem Statement:** Why is the application process taking too long?

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## Department of Prevention Example



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## Fishbone Diagram: Activity

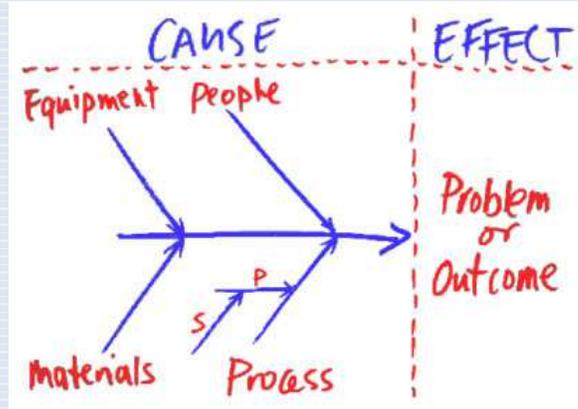
- Practice Fishbone Diagram by taking a simple problem and identifying as many potential causes as you can



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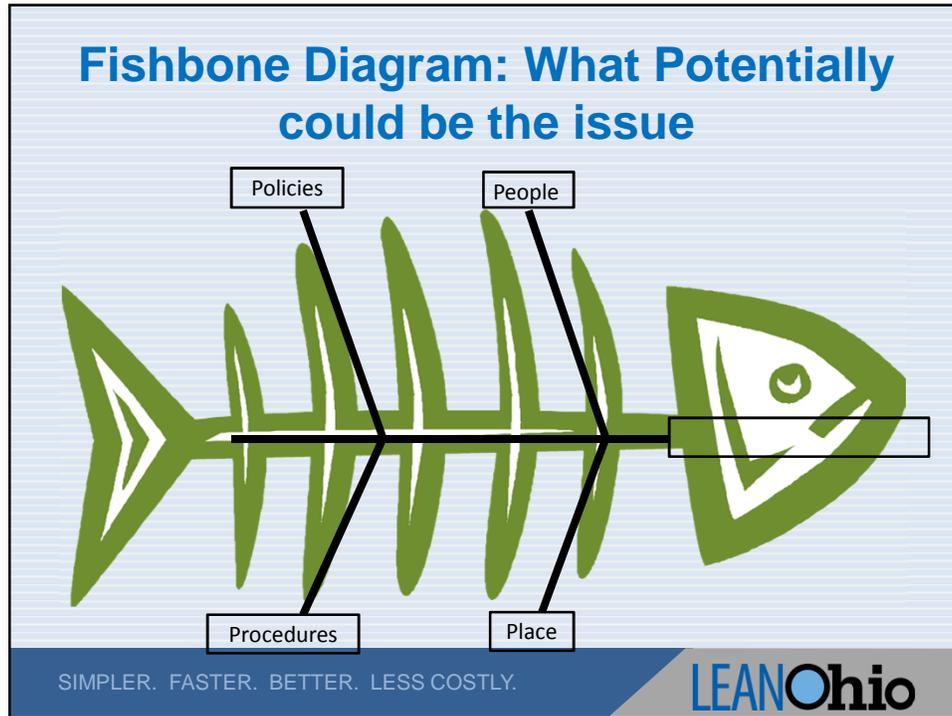
# Try One



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- 1. Too many complaints
- 2. Too many errors
- 3. Wrong form selected
- 4. Missed calls
- 5. Abandoned calls
- 6. Mis-transferred calls
- 7. Errors on forms received
- 8. Lost documents
- 9. Mis-filed documents
- 10. Printer jams



## Fishbone Diagram: Key Learning Points

The Green Belt should now be able to:

- Have a better understanding of the causative factors
- Create a Fishbone Diagram

**QUESTIONS?**

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