Cause & Effect Relationships

Take Aways

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Cause & Effect

$$Y = f(X)$$

Effect

Causes

Funneling Down the Causes

Process producing Defects

Possible Causes

Potential Causes

Root Causes

Process producing fewer Defects
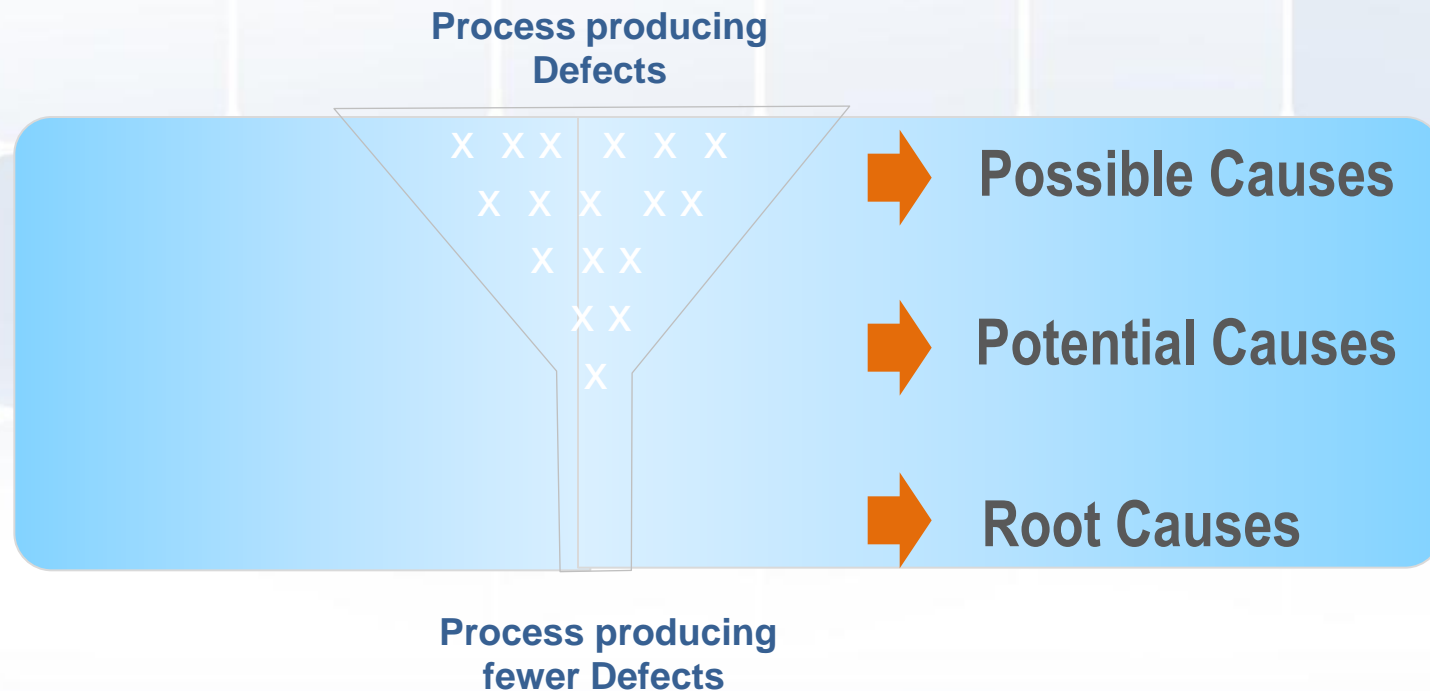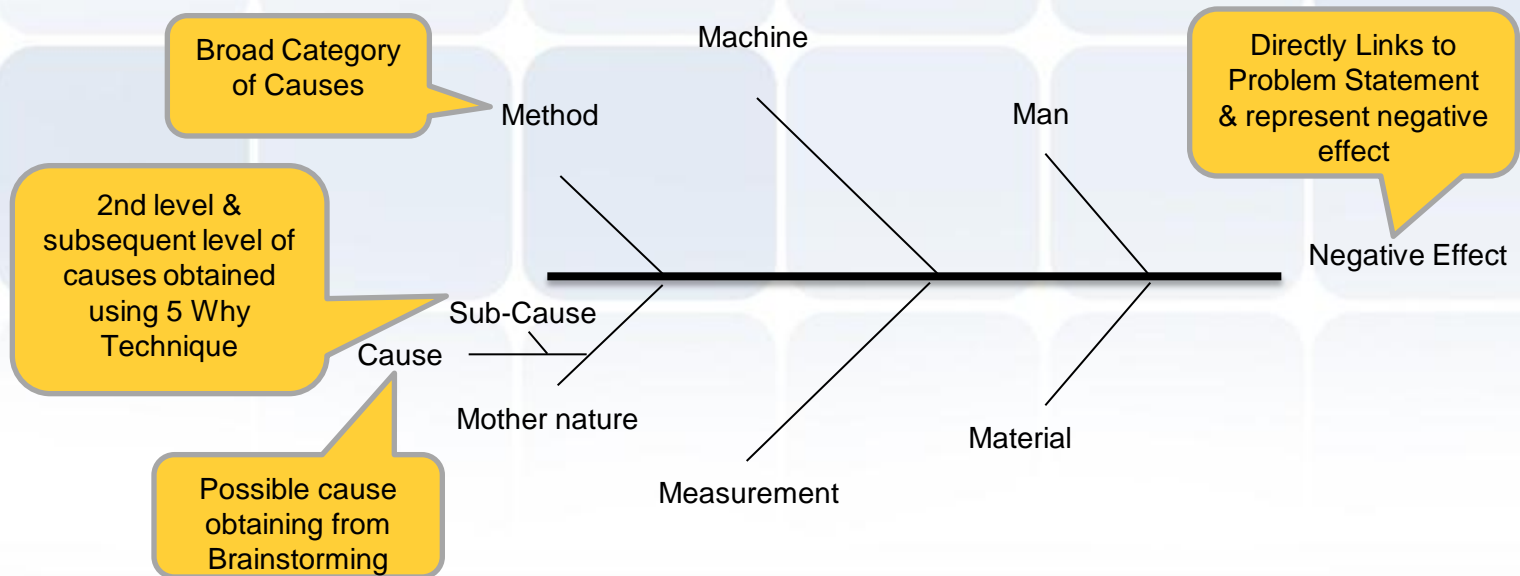
Structure of Cause & Effect Diagram

Example of 5 Why – Manufacturing

Peeling an Onion

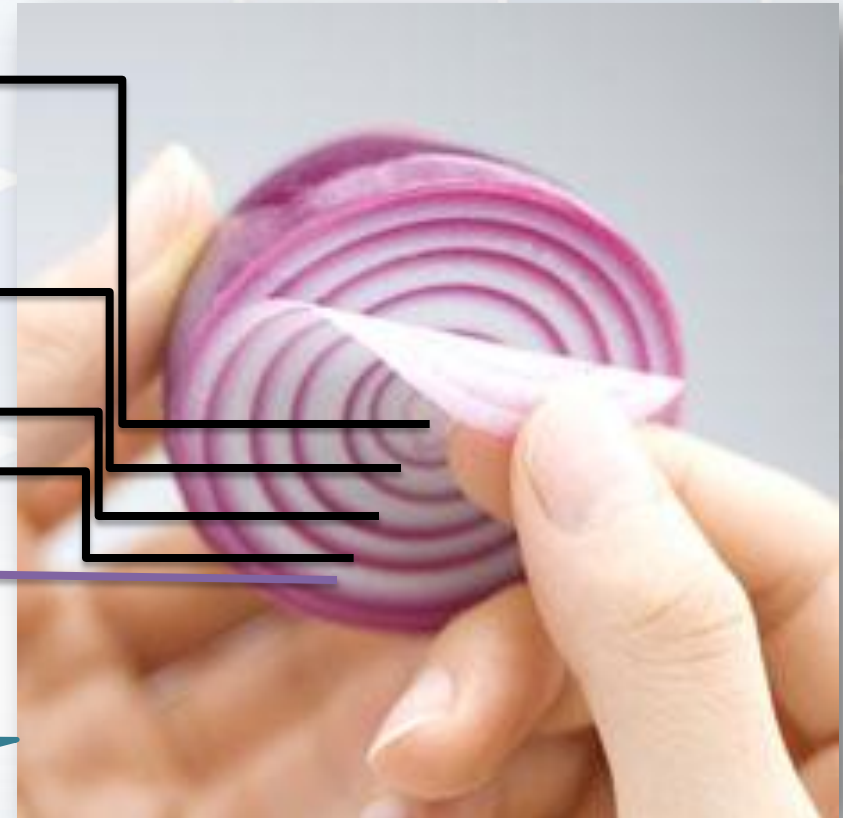Lubrication Checking & Refilling frequency incorrect

Lubrication level found very low

Gearbox jammed

Conveyor B/D

Down Time High

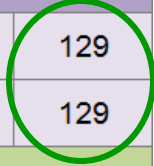**What can we do to ensure timely lubrication?**

Finding the reason or cause is like peeling an onion

Example of Cause & Effect Matrix

Xs (Causes)	Project CTQ	Secondary Metric	Secondary Metric	
	Delivery Time	**Defect Free Parts**	**Customer Complaints**	**Overall Score**
Customer Importance/Project Weightage -->	**7**	**9**	**3**	
Method				
Manufacturing Delay	9	3	9	117
Delay in QC	9	3	9	117
Incorrect Manufacturing Process	1	3	1	37
Man				
Full Capacity	3	1	3	39
High Process Time	1	3	1	37
Material				
High rejection in QC	3	9	9	129
Material quality bad	3	9	9	129
Machine				
Delay in scheduling	9	1	3	81
Machine break-down	1	1	1	19

Y (Effect)

Factors with high scores selected

Gemba Visit Cheat Sheet

With respect to the defect or root cause explore on the following lines:

What is being done	*Why* is it being done	*What Else* is being done
Who is doing it	*Why* are they doing it	*Who Else* could do it
When Are they doing it	*Why* then	*When Else* could it be done
Where Is it being done	*Why* there	*Where Else* could it be done
How is it being done	*Why* that way	*How Else* could it be done

PGA Summary

Practical – Graphical – Analytical

Practical	Graphical	Analytical
Go to Gemba	Trend Analysis / Multi-vary Charts / Eyeballing	Regression / Hypothesis Testing

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- Deriving & executing **Business & Functional Strategies**

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- Improving profitability by leading **Business Transformation** initiatives

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