



Continuous Improvement Toolkit

5 Whys

Managing Risk

PDPC

FMEA RAID Logs

Fault Tree Analysis

Risk Assessment*

Decision Tree

Traffic Light Assessment

Lean Measures

KPIs

OEE

Capability Indices

MSA

RTY

Descriptive Statistics

Cost of Quality

Probability Distributions

ANOVA

Reliability Analysis

Graphical Analysis

Hypothesis Testing

Understanding Performance

Run Charts

5 Whys

Chi-Square Test

Control Charts

Benchmarking

Sampling

Fishbone Diagram

TRIZ***

Focus groups

Interviews

Brainstorming

Analogy

SCAMPER***

Photography

Check Sheets

Nominal Group Technique

Mind Mapping*

Measles Charts

Surveys

Affinity Diagram

Attribute Analysis

Data Collection

Critical Incident Technique

Lateral Thinking

Visioning

Observations

Creating Ideas**

Deciding & Selecting

Pros and Cons

Importance-Urgency Mapping

Break-even Analysis

Cost -Benefit Analysis

Force Field Analysis

Pugh Matrix

Voting

SWOT

QFD

Matrix Diagram

TPN Analysis

Kano Analysis

Prioritization Matrix

Critical-to Tree

Paired Comparison

Cause & Effect Matrix

Pareto Analysis

Confidence Intervals

Understanding Cause & Effect

Probability Distributions

ANOVA

Graphical Analysis

Hypothesis Testing

Scatter Plot

Correlation

Regression

Design of Experiments

Multi-Vari Charts

Bottleneck Analysis

Visual Management

Control Charts

5 Whys

Chi-Square Test

Relations Mapping*

Flow

Value Analysis

5S

Benchmarking

Sampling

Fishbone Diagram

TRIZ***

Relations Mapping*

Wastes Analysis

SMED

Focus groups

Interviews

Brainstorming

Analogy

SCAMPER***

Time Value Map

Process Redesign

Photography

Check Sheets

Nominal Group Technique

Mind Mapping*

IDEF0

Value Stream Mapping

SIPOC

Measles Charts

Surveys

Affinity Diagram

Attribute Analysis

Flow Process Chart

Process Mapping

Data Collection

Critical Incident Technique

Lateral Thinking

Visioning

Flowcharting

Service Blueprints

Planning & Project Management*

RACI Matrix

Stakeholders Analysis

PEST

PERT/CPM

Activity Diagram

Roadmaps

Project Charter

Gantt Chart

PDCA

Control Planning

Gap Analysis

Hoshin Kanri

Kaizen

How-How Diagram

Tree Diagram**

Standard work

Simulation

TPM

Identifying & Implementing Solutions***

Mistake Proofing

Pull Systems

JIT

Ergonomics

Work Balancing

Automation

Bottleneck Analysis

Visual Management

Flow

Value Analysis

5S

Wastes Analysis

SMED

Time Value Map

Process Redesign

IDEF0

Value Stream Mapping

SIPOC

Flow Process Chart

Process Mapping

Flowcharting

Service Blueprints

Designing & Analyzing Processes

- 5 Why's

- ❑ Used to explore the cause-and-effect relationships underlying a particular problem
- ❑ Allows to find to the root cause of a problem quickly.
- ❑ Simply requires to ask **“Why does this happen?”** several times over a defect or a problem.
- ❑ The answer to each question then forms the basis of the next question.
- ❑ Encourages deep thinking.
- ❑ Helps determine the relationship between the different causes.



- 5 Why's

Tips:

- ❑ Never accept the first reason given.
- ❑ Always probe behind the answer.
- ❑ Continue until you can no longer answer the question “Why”.
- ❑ Generally five iterations of asking why is sufficient to get to a root cause.
- ❑ However, you may need to get to a higher level.
- ❑ The key is to encourage the trouble-shooter to avoid assumptions and logic traps.



Keep in mind that people do not fail, processes do

- 5 Why's

Example:

□ Problem Statement: “Got caught speedy”

- **Why?**
Late for work.
- **Why?**
Got up late.
- **Why?**
Alarm clock didn't work.
- **Why?**
Batteries were flat.
- **Why?**
Forgot to replace them.

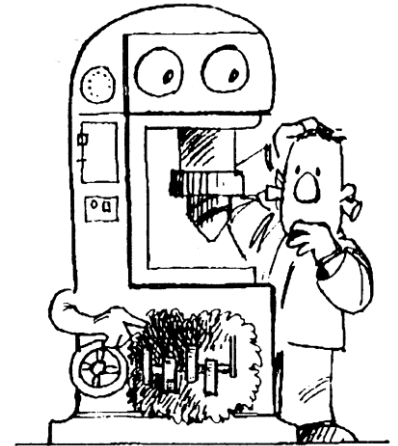


Action: Replace Batteries at set intervals before they run out

- 5 Why's

Manufacturing Example:

- Problem Statement: *“The machine has stopped!”*
 - **Why?**
Because there is overload tripped out.
 - **Why?**
Because there is Insufficient oil on the shaft.
 - **Why?**
Because the pump was inefficient.
 - **Why?**
Because the pump drive shaft is worn.
 - **Why?**
Because the oil filter is blocked with swarf.



- 5 Why's

5 Why's	
Project (Number/Name):	Project leader:
Process/Product/Service:	Last updated:
Describe the problem:	
1. Why?	
2. Why?	
3. Why?	
4. Why?	
5. Why?	
<i>Continue until you get to the real root cause of the problem.</i>	

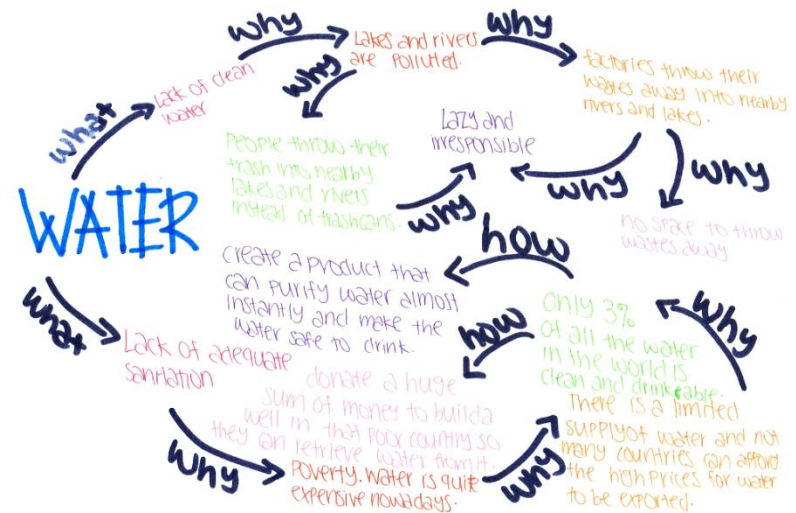
- 5 Why's

Why-Why Diagram:

- ❑ Used when there are multiple answers to the 'Why' question.
- ❑ The result is a hierarchical tree-structure.
- ❑ It allows us to consciously not to follow some paths, digging only into the most likely areas.

- ❑ **Consider using:**

- Cause and Effect diagram.
- Tree Diagram.



- 5 Why's

Example:

