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A-3 Root Cause Problem Solving

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LEARN BY DOING FROM THOSE WHO DO

October 19, 2021

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- Wear masks at all times in indoor events.
- Complete your daily health screening on your phone and bring it with you when you enter the center each day.
- Practice social distancing to the extent possible. Seating at plenary sessions is structured to help with this.
- If you feel ill at any time, please leave the conference and return to your room/consult a physician as necessary.
- Ultimately, our collective health and safety at Congress is up to all of us. Thanks for your support!

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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

Agenda

- Introduction to 7-Step Problem Solving Method (60 mins)
- Break (10 mins)
- Problem Solving Simulation (60 mins)
- Break (10 mins)
- 8 Wastes (30 mins)
- Data Collection Plan (30 mins)
- Plus/Delta (15 mins)

Handouts…

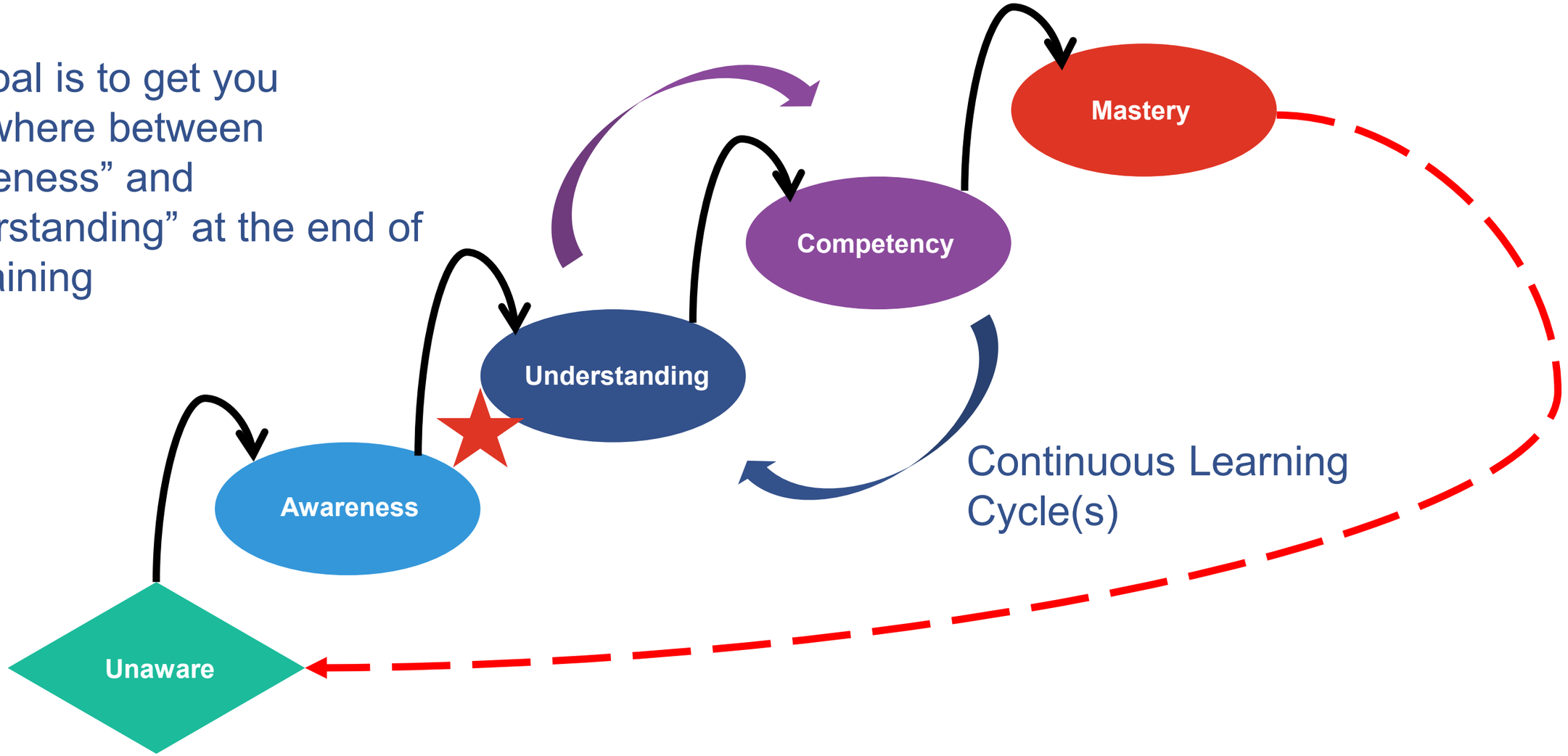
- Participant Guide (1 per person)
- Pre-Planning Worksheet (1 per person)
- Laminated A-3 (1 per person)
  - Fishbone
  - PICK Chart
  - 5-Why Analysis Chart
  - 5 Questions for Every A-3
- Data sheet (1 per table)
- Playing cards (1 set per table)
- Wet erase pen (1 per table)
- Sticky notes (1 per table)
- Bag of M&Ms (1 per person)
- Set of markers (1 per table)

Introductions

Take a minute or two to introduce yourself to your table

Lean Journey to Mastery

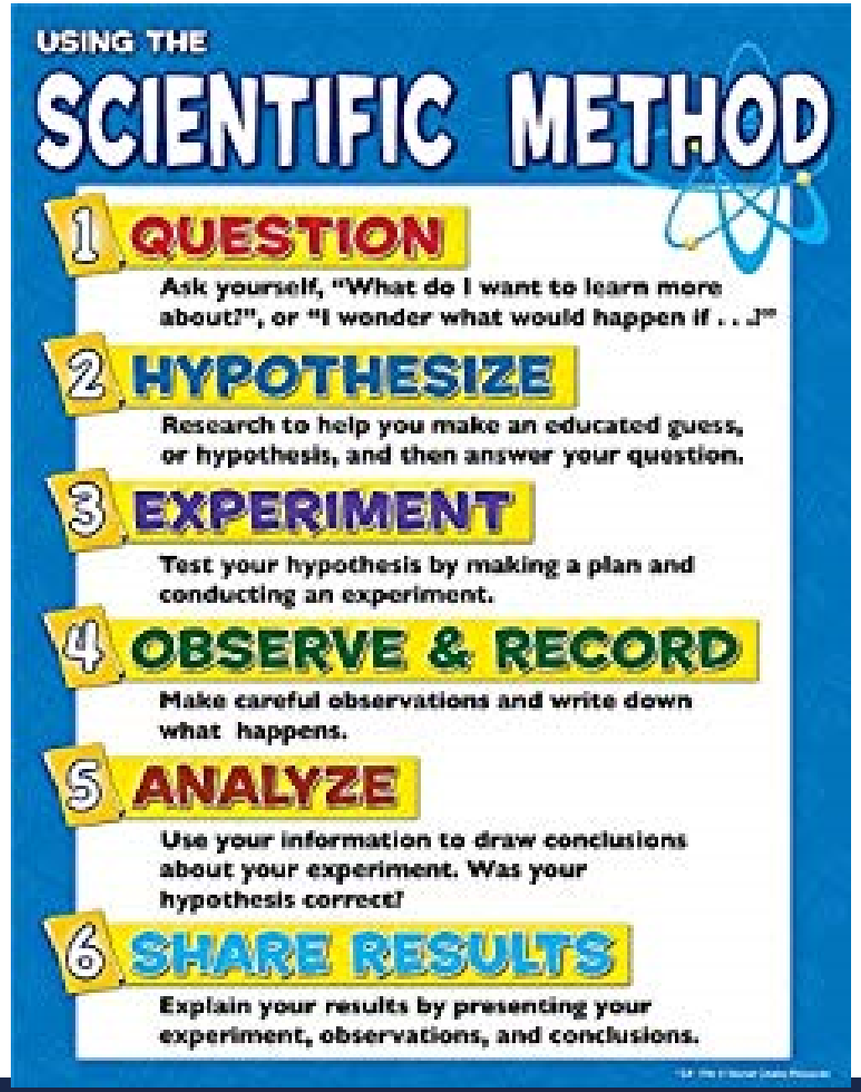
The goal is to get you somewhere between "Awareness" and "Understanding" at the end of this training



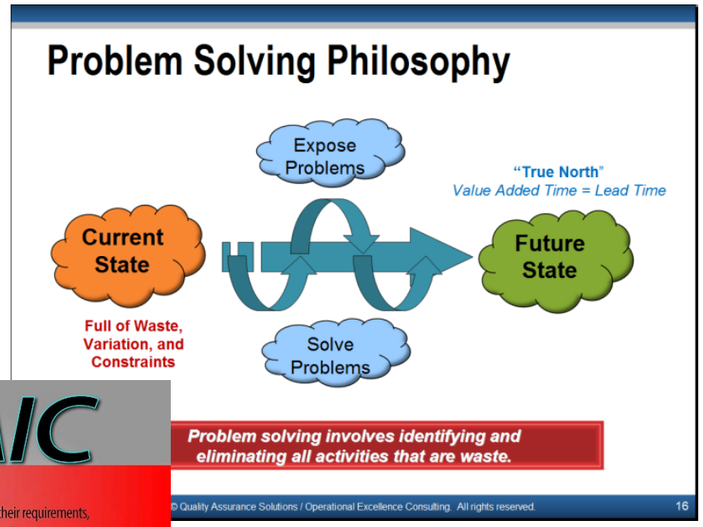
“Work The Problem”

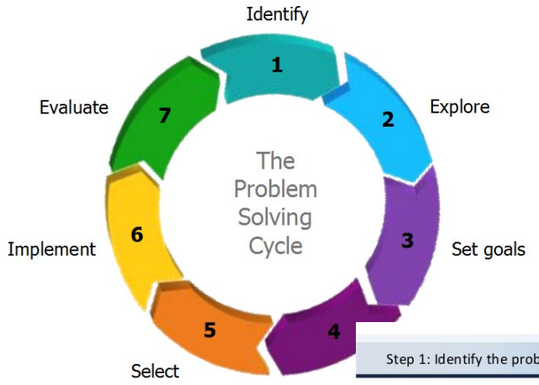
https://www.youtube.com/watch?v=ry55--J4_VQ

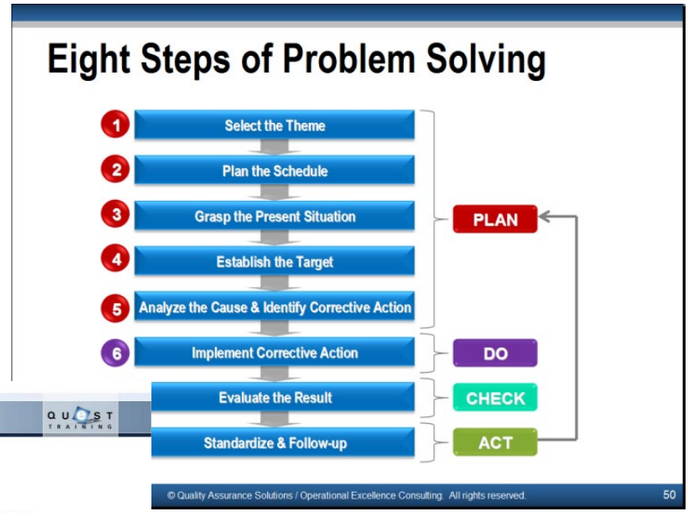
Remember Back to Third Grade…

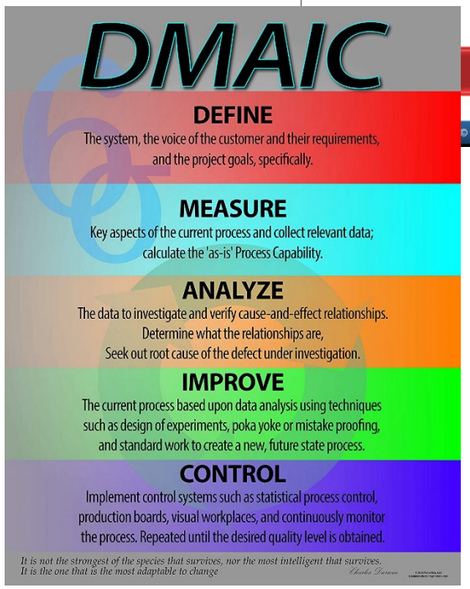


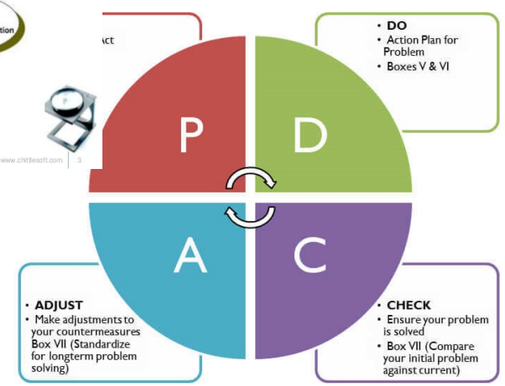
Problem Solving Methodologies



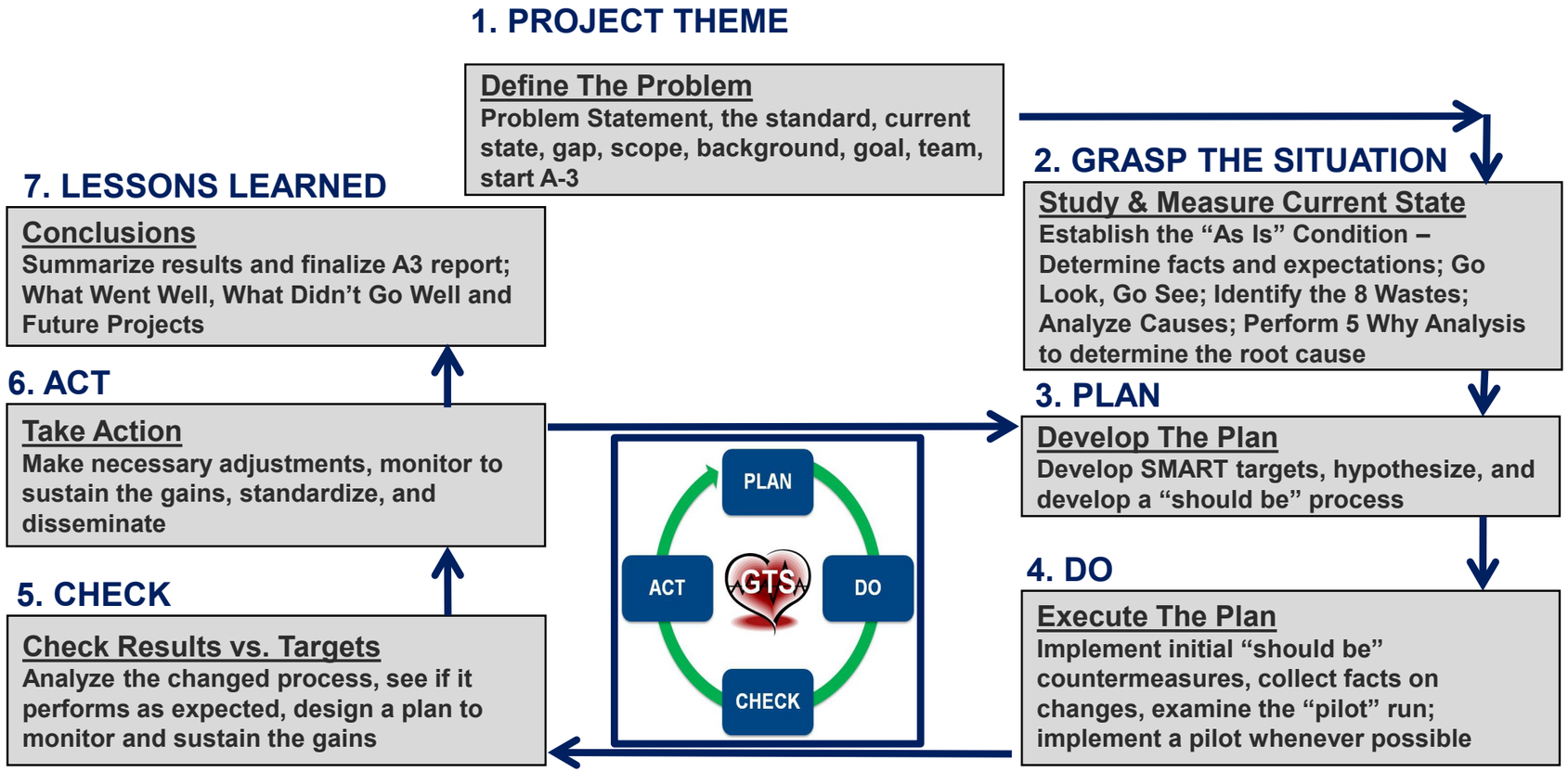








*7-Step Problem Solving Method



“No One Told Me There Would Be Math On This”

next

Problem #1

For what value of y is it true that

7(y + 4) – 3(y – 5) = 6y + 35 ?

Answer: y = 4

$\sqrt{x-3} = 7$

$x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

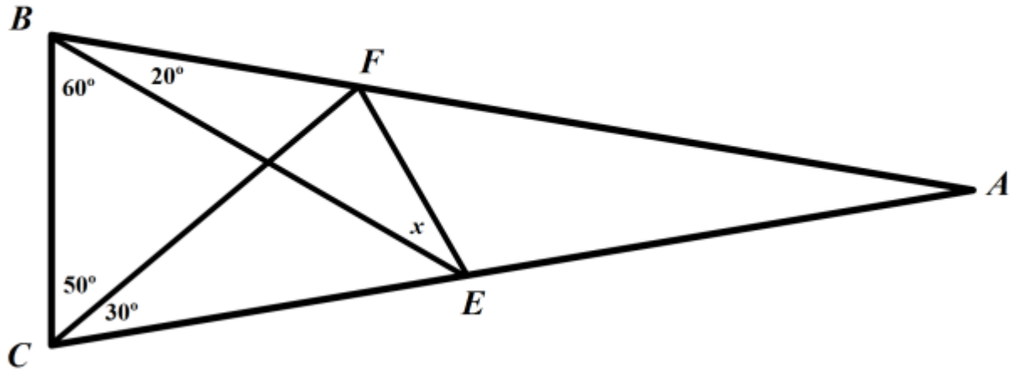
$\left|x - \frac{5}{2}\right| = 6$

$4x + 3 = 19$

$|4x - 8| = 5$

$(x-1)(x+4)(x+9)$

Solve for x



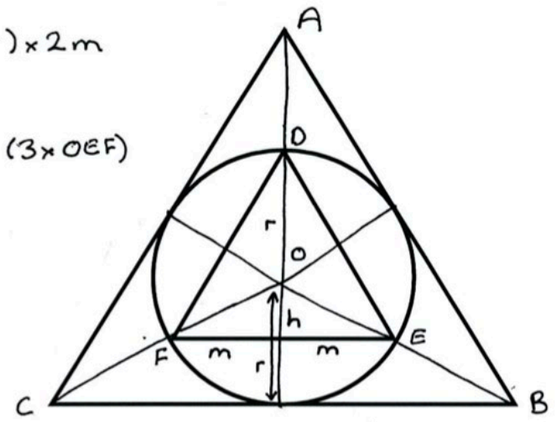
Area DEF = $\frac{1}{2} \times (h+r) \times 2m$

$= m \times (h+r)$

$= 3 \times \frac{1}{2} \times h \times 2m$ (3 × OEF)

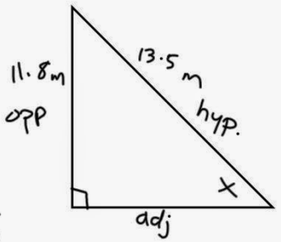
$h + r = 3h$

$h = \frac{r}{2}$



Example 4: A storm caused a 13.5 m hydro pole to lean over. The top of the pole is now 11.8 m above the ground. Find the measure of the angle between the hydro pole and the ground, to the nearest degree.

SOH CAH TOA



$\sin\theta = \frac{opp}{hyp}$

$\sin x = \frac{11.8\ m}{13.5\ m}$

$\sin x = 0.87$

$x = 60.45^{-0}$

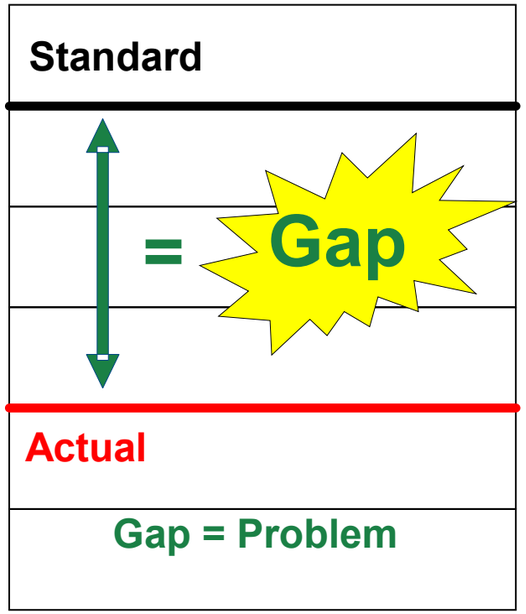
$\sin^{-1}$

$\doteq 60$

∴ the angle between the pole and the ground is 60°

What is a Problem?

- A Problem is a discrepancy, or gap, between a standard or expectation, and the actual or current state



- More simply put…it's a deviation from the standard

*Finding the Gap

- In order to find the gap, you need a clear standard and current performance
  - Clear standard
    - Is written or commonly understood by all
    - Has a measureable performance base
  - Current performance
    - A measurement of how the process is currently performing
    - Used as a baseline to measure improvement
    - Has clearly understood data points

Good problem solving requires data driven decision making!

Identifying Problems

- Problem solving starts with a “hypothesis” that leads to a clear statement
- Properly stating a problem requires a clear assessment of the following:
  - The Gap between the “Standard” & “Current” conditions
  - The Impact as it affects Safety, Quality, Budget, or Schedule
  - The Urgency for a countermeasure
- Too often we move quickly into “problem solving” without clear problem statements
  - This leads to attacking the symptom rather than root cause
  - Leads to scope creep which takes us off target

The Critical Step

- Develop a good problem statement

Really Bad Problem Statements

- We need to clean up this jobsite
- We need to change how we do timecards
- We need less cost codes
- We need to cut back our crew

Are these problem statements?

Better Problem Statements…But Still Bad

- This job site is always a mess, we need to fix it
- It takes too long to do timecards, let's change the process
- We have too many cost codes, we need to reduce them
- We have too many guys on this job site, let's cut some guys

- Where is the data? What is the standard…current state…gap?

This is normally where we start our problem solving

*The Start of a Problem Statement

- “It feels like…”
- “I think we…”
- “It seems like…”
- “We may have…”

Your problem statement is a hypothesis until you prove it with data

The Start of Good Problem Statements

- “It feels like” this job site is always a mess
- “I think it” takes too long to do timecards
- “It seems like” we have too many cost codes
- “We may have” too many guys on this job site

What is still missing?

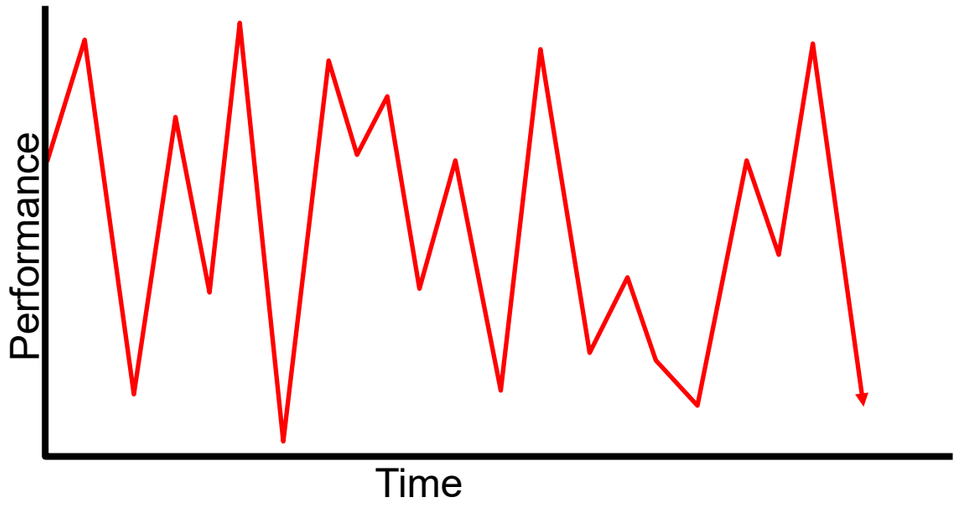
Better Problem Statements

- Team 3 has failed 8/10 5-S audits, the standard is 80% pass rate
- Our foremen are spending 8% of their day on timecards, the goal is to be under 1%
- Westfield has over 1000 cost codes, no job should have more than 500
- The budget/schedule for CBU shows 250 hours remaining for framers, but the current workforce projects to use 380 hours

What do you see as the biggest challenge to getting these problem statements?

Working With Process Problems

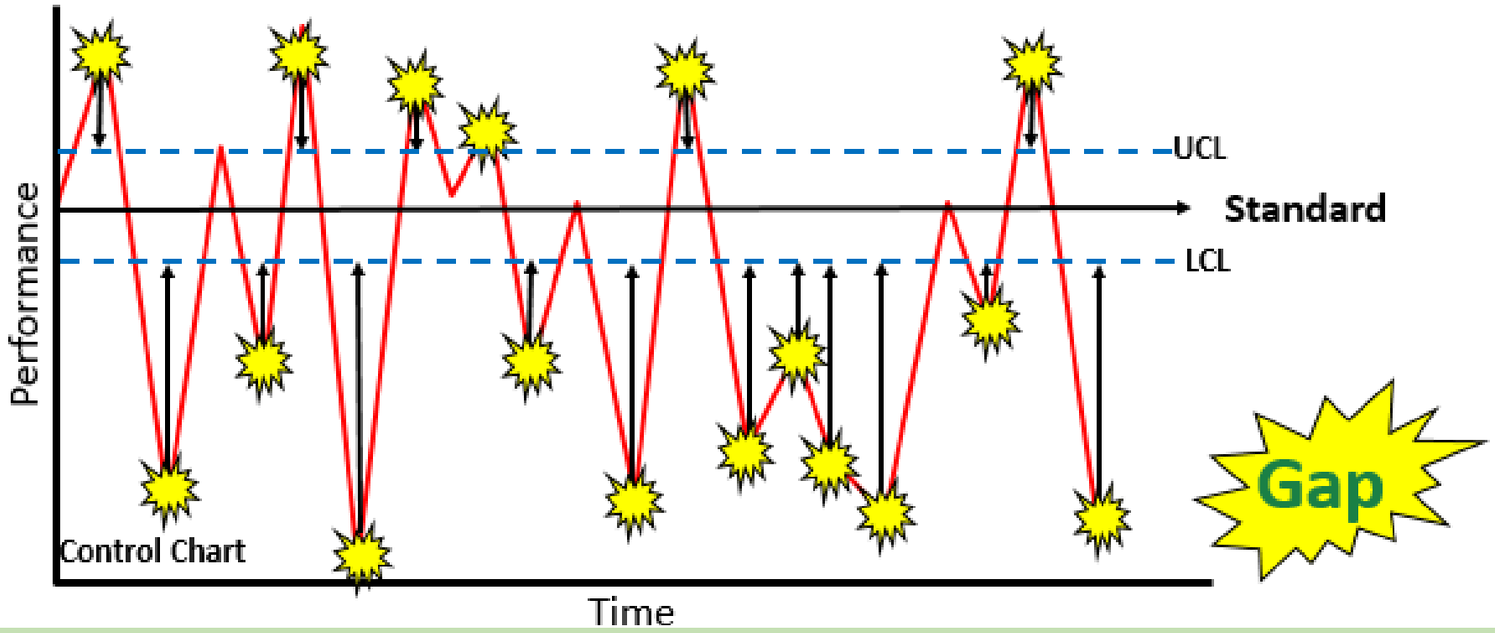
- The Current “As Is” process performance must be measured and documented.



Can you see a Gap / Problem yet?

Working With Process Problems

- But when you add the standard and limits…the problems (gaps) become visible

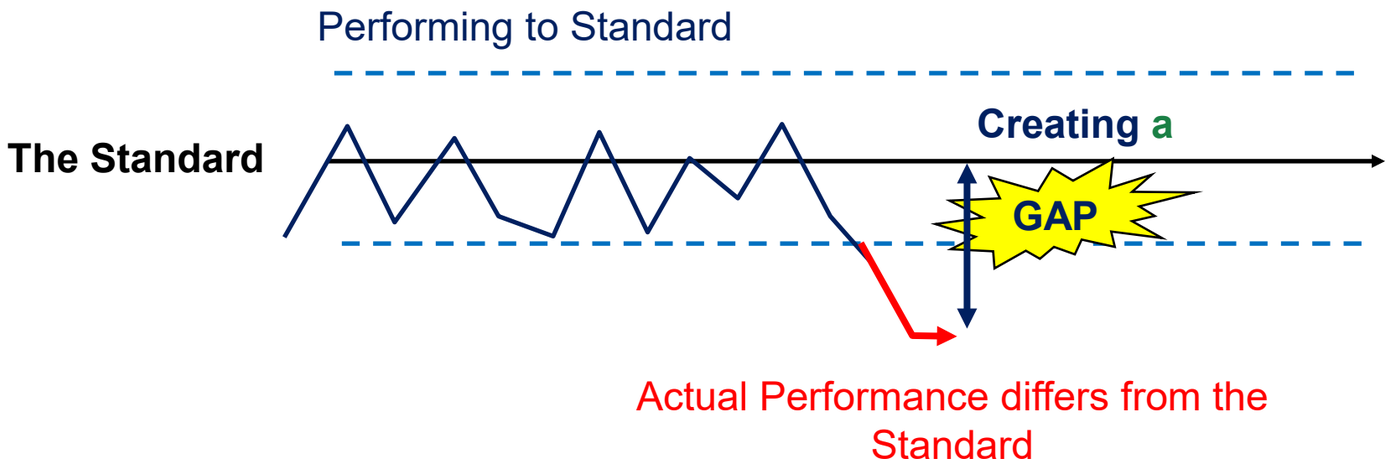


2 Types of Gaps (Problems)

- Process Variation Gaps
  - When the performance of a process differs from the established standard
  - Example: not hitting the current budget
- Process Improvement Gaps
  - When Gaps are purposely created by raising the standard in order to improve the process
  - Example: cutting hours on an established budget

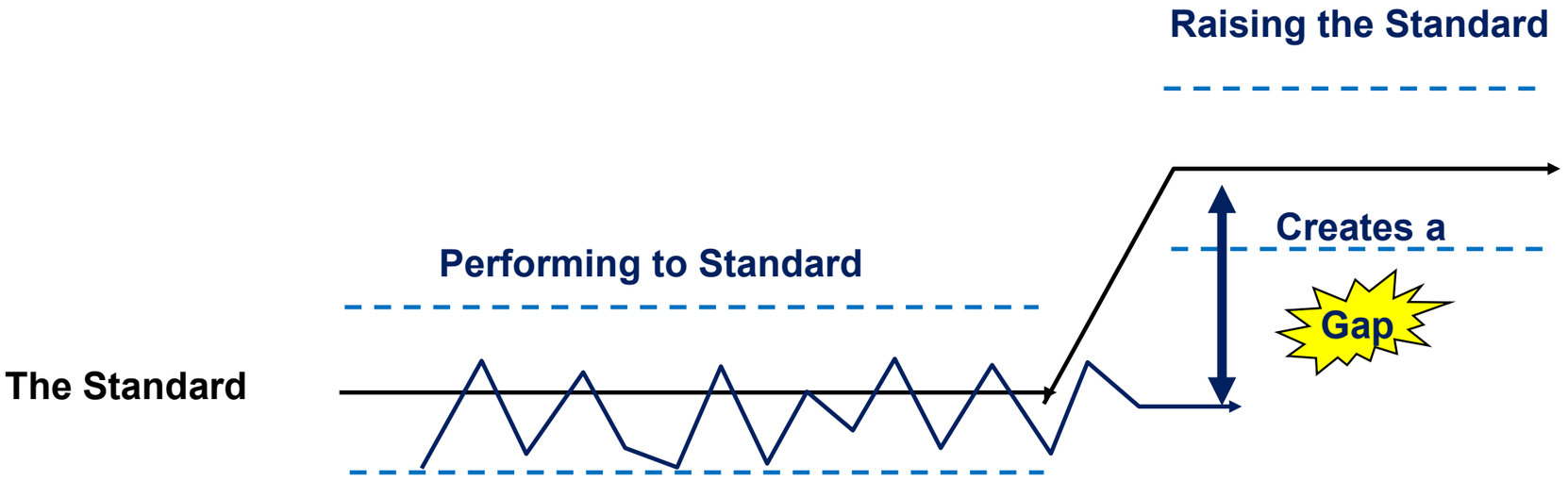
Process Variation Gaps

- Are typically highlighted by monitoring the process against the standard
- Can be divided into gaps with Internal or “Common” Causes and gaps with External or “Special” Causes



Process Improvement Gaps

- Are typically highlighted by looking for opportunities to systematically reduce and eliminate waste within the process



Waste Watchers (more on waste later)

- Most gaps between standard and actual are the results of waste in the process
- **We all need to develop an “Eye for Waste” so we can all be problem solvers**

Dealing With Gaps/Problems

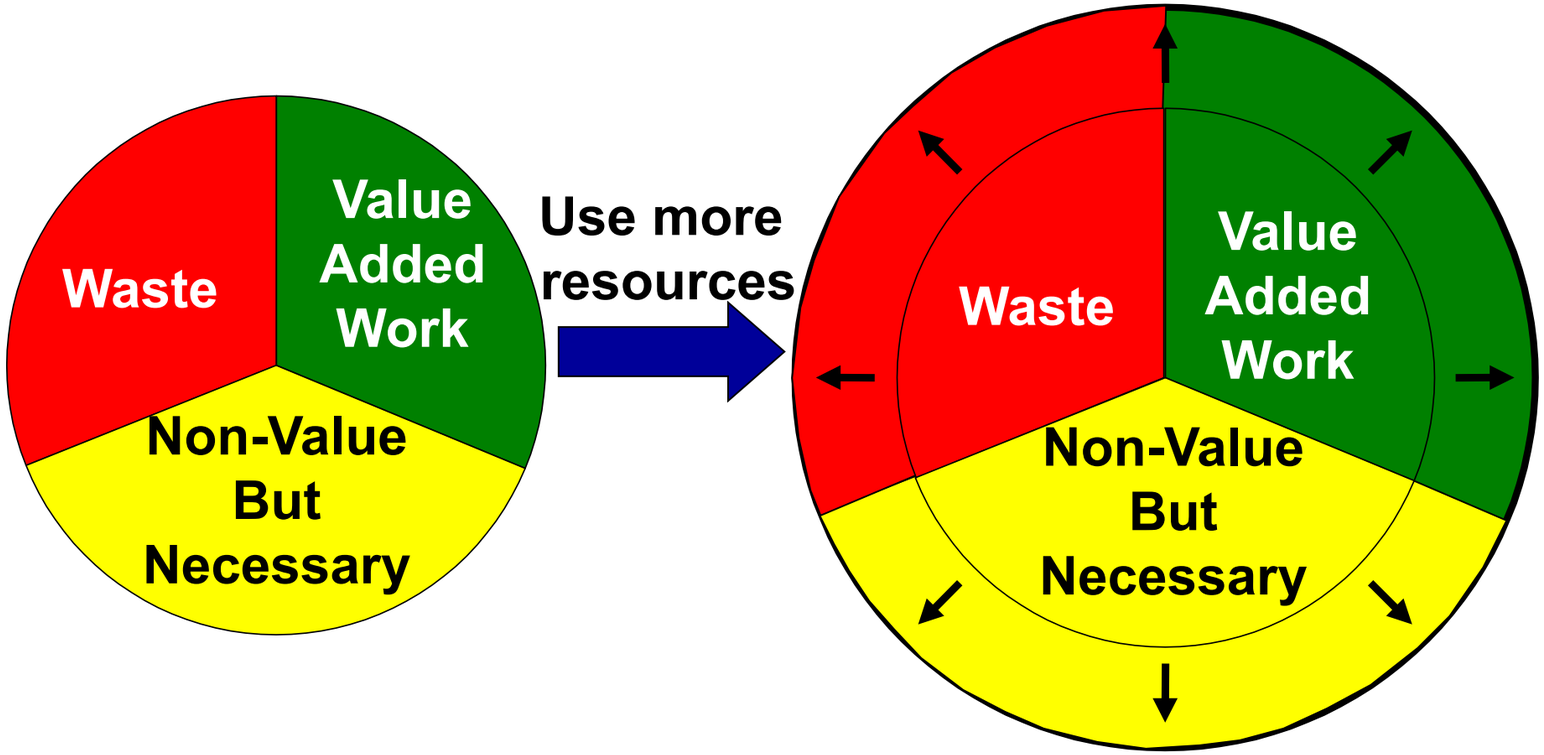
- Stop hiding your problems
- Celebrate the fact that a Gap / Problem has been identified because it’s an opportunity to improve, but NEVER stop there.
- Problems can be categorized into 3 different types:
  - Quick Wins (1 day to a few weeks)
  - Problem Solving Events (2-6 months)
  - Long Term (Transformational) Initiatives (6-12 months)
- All of these can be improved using the 7 Step Problem Solving Methodology

Culture of Problem Solvers

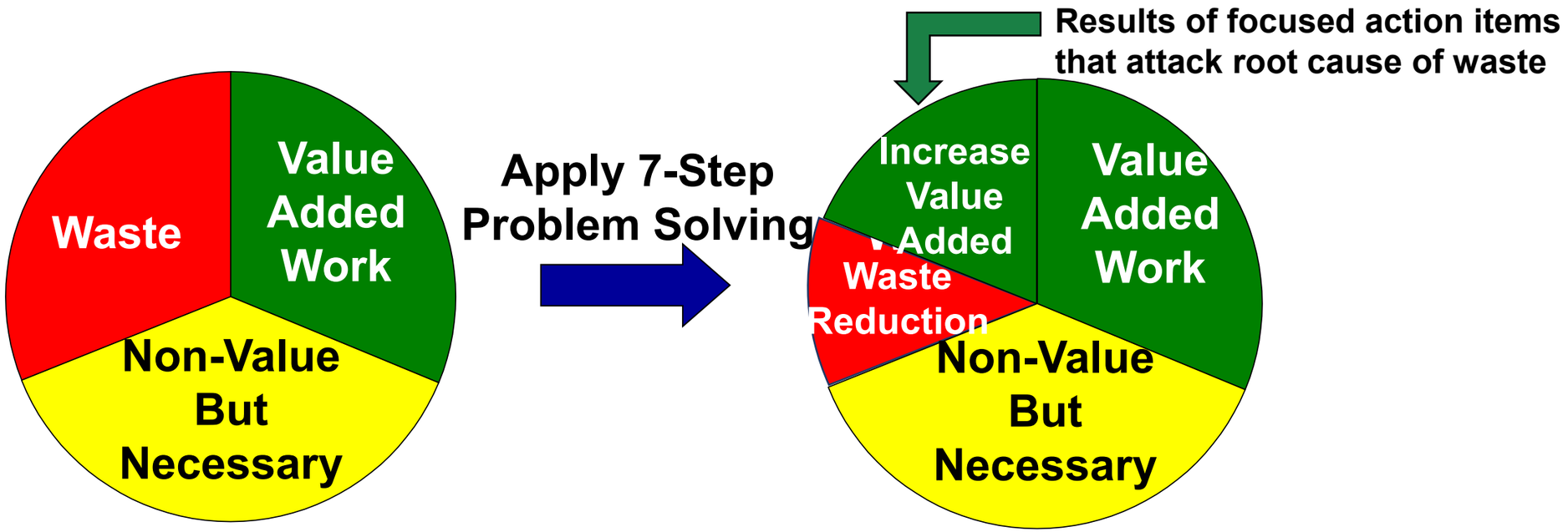
- Make a culture shift from seeing problems as failures that should be hidden from view, to highlighting problems and celebrating the opportunity for Continuous Improvement

- All levels of leadership must shift from the “Blame Game” to supporting teams in solving problems at all levels of the organization

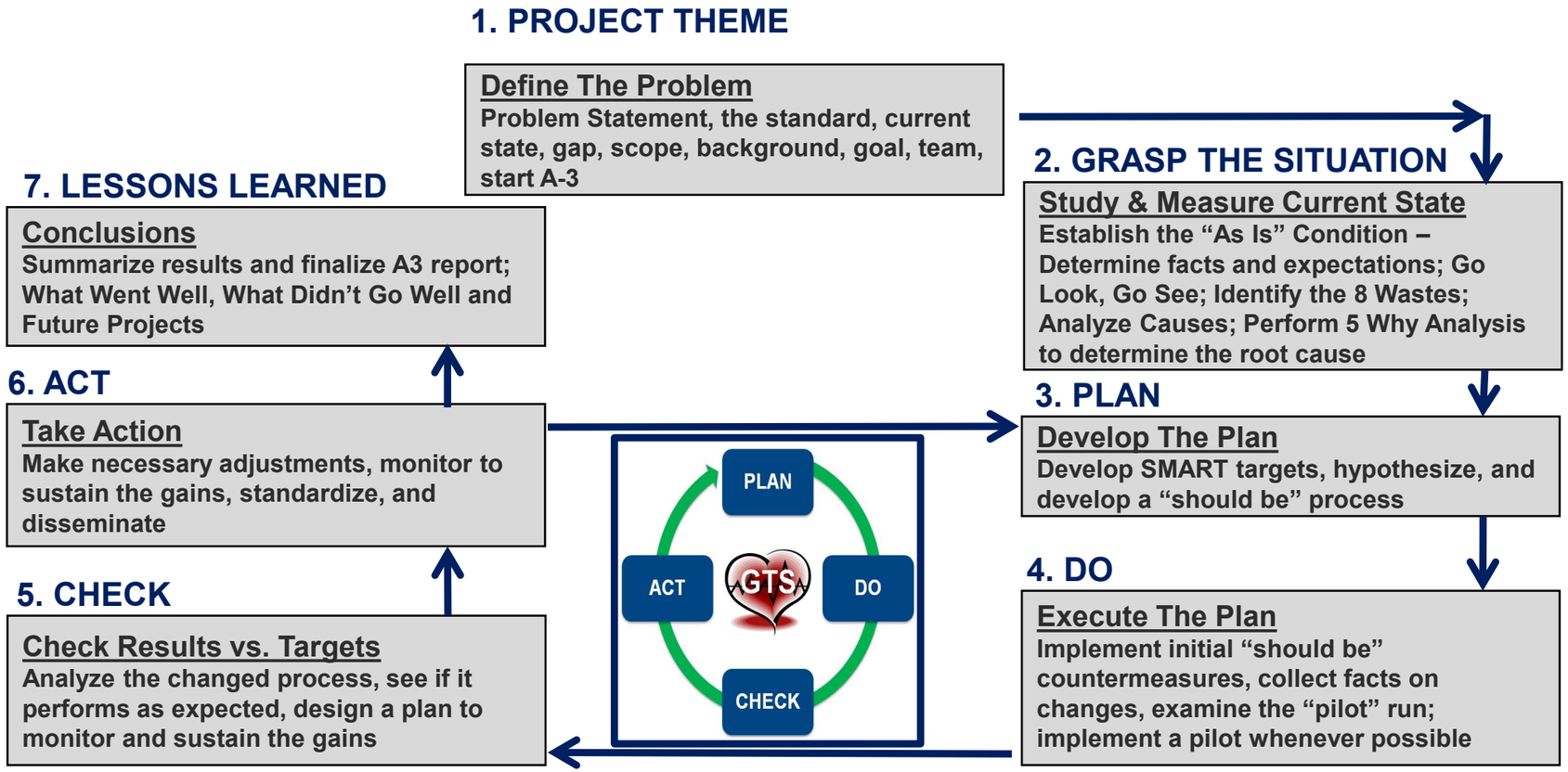
Old Way to Problem Solve



Problem Solve the Root Cause of Waste



7-Step Problem Solving Method



Step 1: Project Theme

1. PROJECT THEME

Define The Problem

Problem Statement, the standard, current state, gap, scope, background, goal, team, start A-3

Your problem statement is a hypothesis, you need to prove it with data

Step 2: Grasp The Situation

2. GRASP THE SITUATION

Study & Measure Current State
Establish the "As Is" Condition – Determine facts and expectations; Go Look, Go See; Identify the 8 Wastes; Analyze Causes; Perform 5 Why Analysis to determine the root cause

Step 3: Plan

3. PLAN

Develop The Plan

Develop SMART targets, hypothesize, and develop a “should be” process

*SMART

- Specific
  - Succinct goal that clearly understood
- Measurable
  - Should address questions such as how much, how many, how will I know when accomplished?
- Achievable
  - Realistic and attainable within the timeframe and resources given
- Relevant
  - On target and worthwhile in achieving the goal
- Timely
  - ALWAYS GIVE A DUE DATE

*Step 4: Do

The most important step:

WE HAVE TO DO WHAT WE SAY WE ARE GOING TO DO!!

4. DO

Execute The Plan
Implement initial “should be” countermeasures, collect facts on changes, examine the “pilot” run; implement a pilot whenever possible

Countermeasures should also follow “SMART”

Step 5: Check

5. CHECK

Check Results vs. Targets
Analyze the changed process, see if it performs as expected, design a plan to monitor and sustain the gains (30/60/90)

Step 6: Act

6. ACT

Take Action
Make necessary adjustments, monitor to sustain the gains, standardize, and disseminate

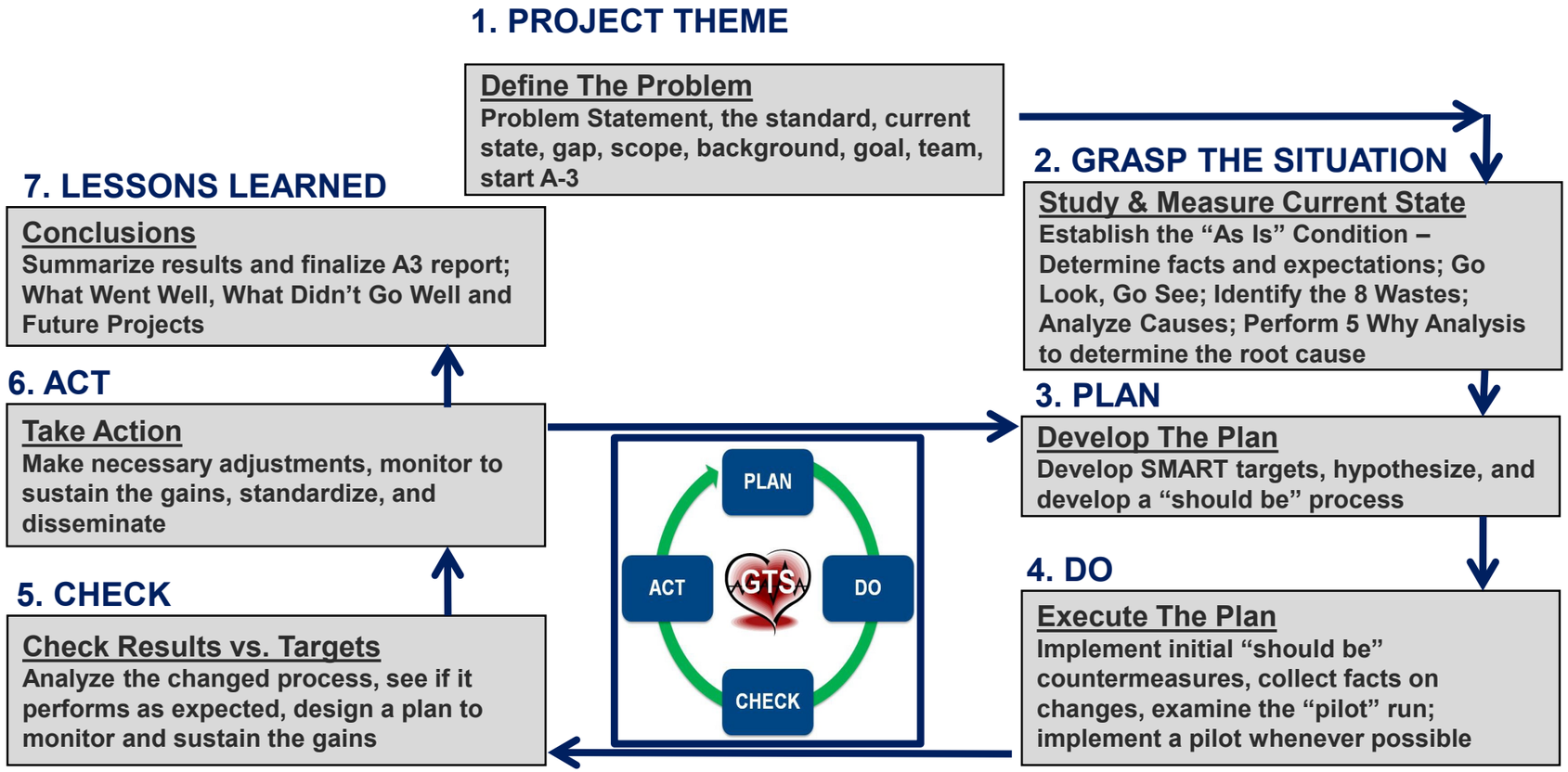
Step 7: Lessons Learned

7. LESSONS LEARNED

Conclusions

Summarize results and finalize A3 report; What Went Well, What Didn't Go Well and Future Projects

7-Step Problem Solving Method



Tools for Problem Solving

- A-3
- 5-Questions for every A-3
- Pre-Planning work sheet
- PICK chart
- Fishbone diagram
- 5-Why’s
- Obeya Room

A-3

- Literally, “A-3” is the size of the paper
- A-3 is also a methodical process used for problem solving
  - Allows groups to actively collaborate
  - Leads to root cause problem solving rather than symptomatic
- 1-page document that captures all 7 steps of the problem solving process
- Allows the project facilitator a guide to keep the project on track
- Used to capture team roles and responsibilities, action plan, baseline performance, project goal, schedule for updates, etc.

A-3 Example

STEP 1: PROJECT THEME
Problem Statement:

Standard:

Current State:

Gap:

Goal:

Scope:

Background:

STEP 2: GRASP THE SITUATION
Data Collection / Analysis Opportunities:

Project Sponsor:
Team Leader:
Team Facilitator:
Team Members:

STEP 2: GRASP THE SITUATION (CONT'D)
Opportunities Identified:

Root Cause Statement:

STEP 3: PLAN
Plan of Action Statement:

#	Measure	Baseline	Goal	Benefits
1				
2				
3				
4				

STEP 4: DO

	In Planning		On Track
	Off Track		Completed

#	Countermeasure	Status	Owner	Date
1				
2				
3				
4				
5				
6				

Team Name:

Date:

STEP 4: DO (CONT'D)

#	Countermeasure	Status	Owner	Date
7				
8				
9				

STEP 5: CHECK

✓	Goal Achieved (> 98%)	O	Approaching Goal (75% to 97%)	X	Goal Not Achieved (<75%)		

#	Measure	Baseline	Goal	Rd 1	Rd 2	Rd 3	Status
1							
2							
3							
4							

STEP 6: ACT

STEP 7: LESSONS LEARNED

*5-Questions for Every A-3

- 5 questions every A-3 should answer:
  1. What problem are you trying to solve?
  2. How do you know it is a problem?
  3. What is the problem costing you or what is the cost to fix it?
  4. How will you measure success?
  5. What are you going to do to fix the problem?

Pre-Planning Worksheet

Problem Solving Pre-Planning Worksheet

Specific Problem Statement	
The Problem is…	The Impact is …
The Standard is …	The Urgency is …
The Current state is …	The Goal is …
The Gap is …	SCOPE: Process Start: Process Stop:

Background Information

Tell the story of any background information relative to the event…

Data Collection Plan

Explain what data you need to prove your problem statement and how you will get it.

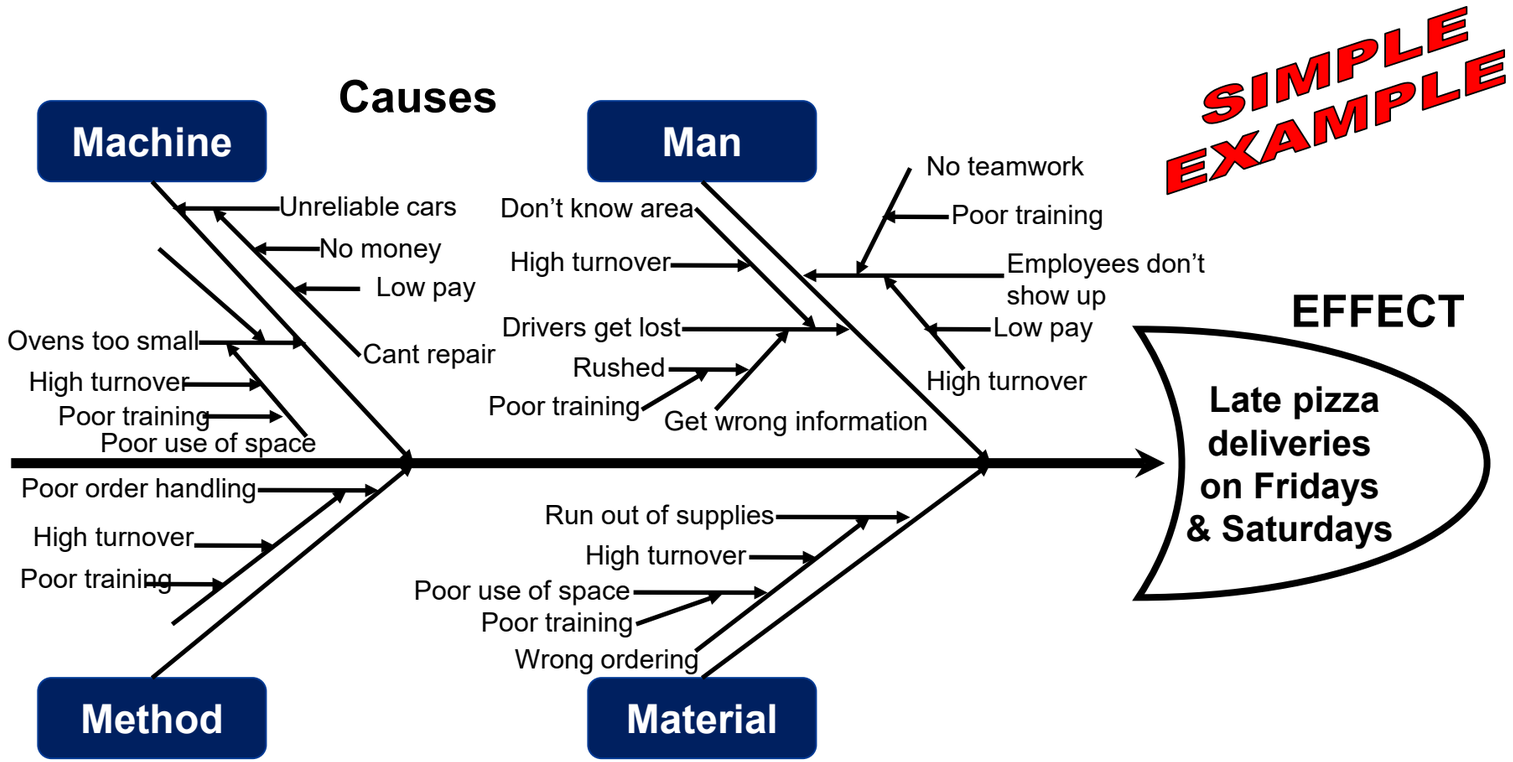
#	Team Member Names	Title	Event Role	Area
1			Sponsor	
2			Outside Facilitator	
3			Team Leader	
4			Team Scribe	
5			Participant	
6			Participant	
7			Participant	
8			Participant	
9			Participant	

Event Start Date:		Event Finish Date:		Report Out Date:	

Report Out Audience

1	8	15
2	9	16
3	10	17
4	11	18
5	12	19
6	13	20
7	14	21

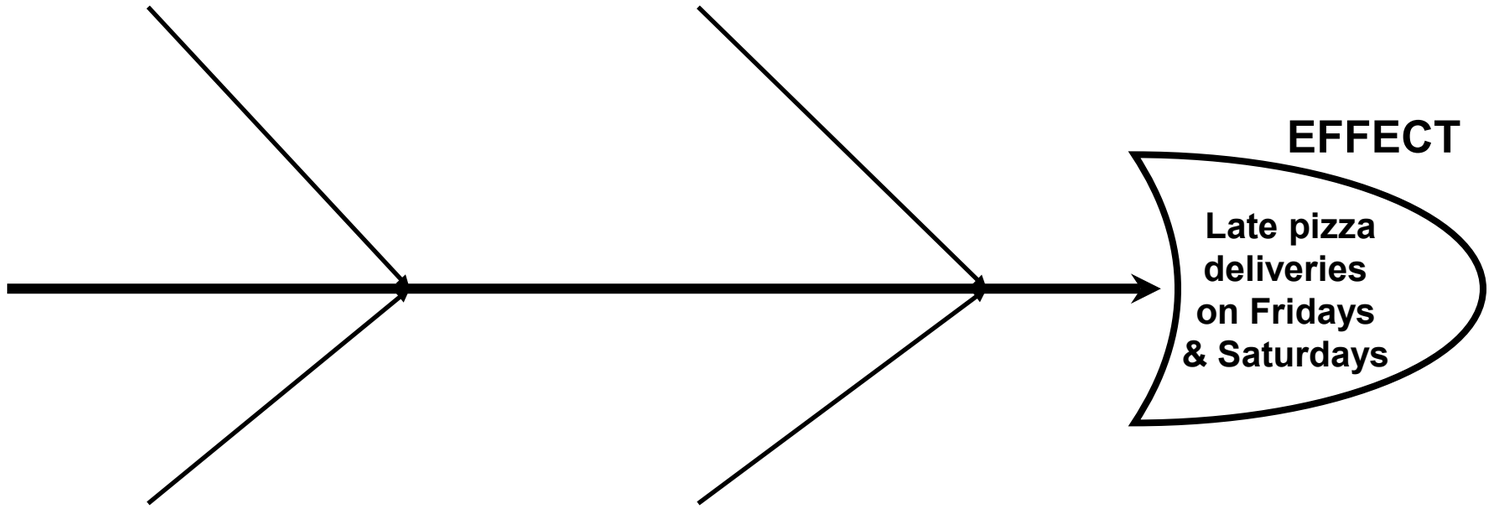
Fishbone Diagram and PICK Chart



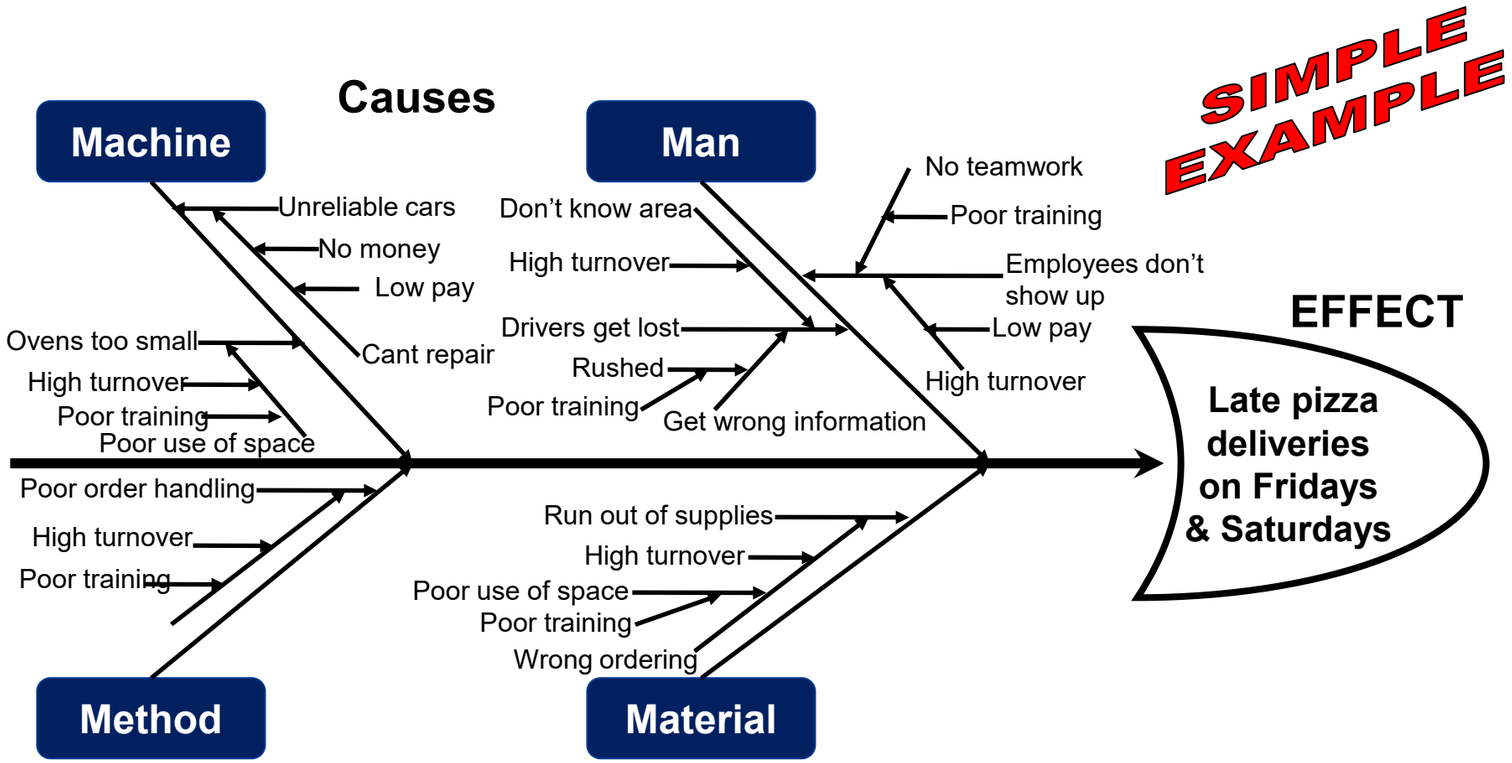
Fishbone Diagram

- It is one type of cause and effect diagram (there are several others)
- The Cause and Effect diagram is used to explore all the potential causes (inputs) that result in a single effect (output)
- Brainstorm all possible causes based on the following:
  - Data analysis
  - Go Look, Go See
  - Experience
- “Causes” are typically arranged into four major categories
  - Man, Method, Machine, Material

Fishbone Example-Start With Problem

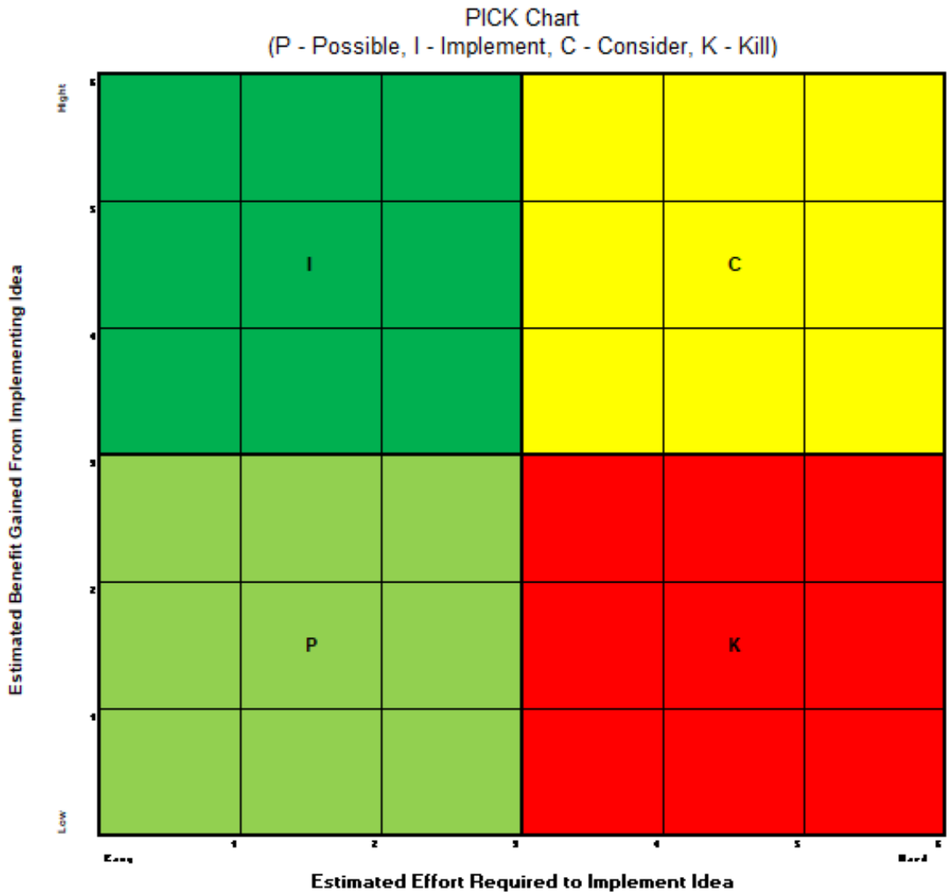


Fishbone Example-Brainstorm Causes

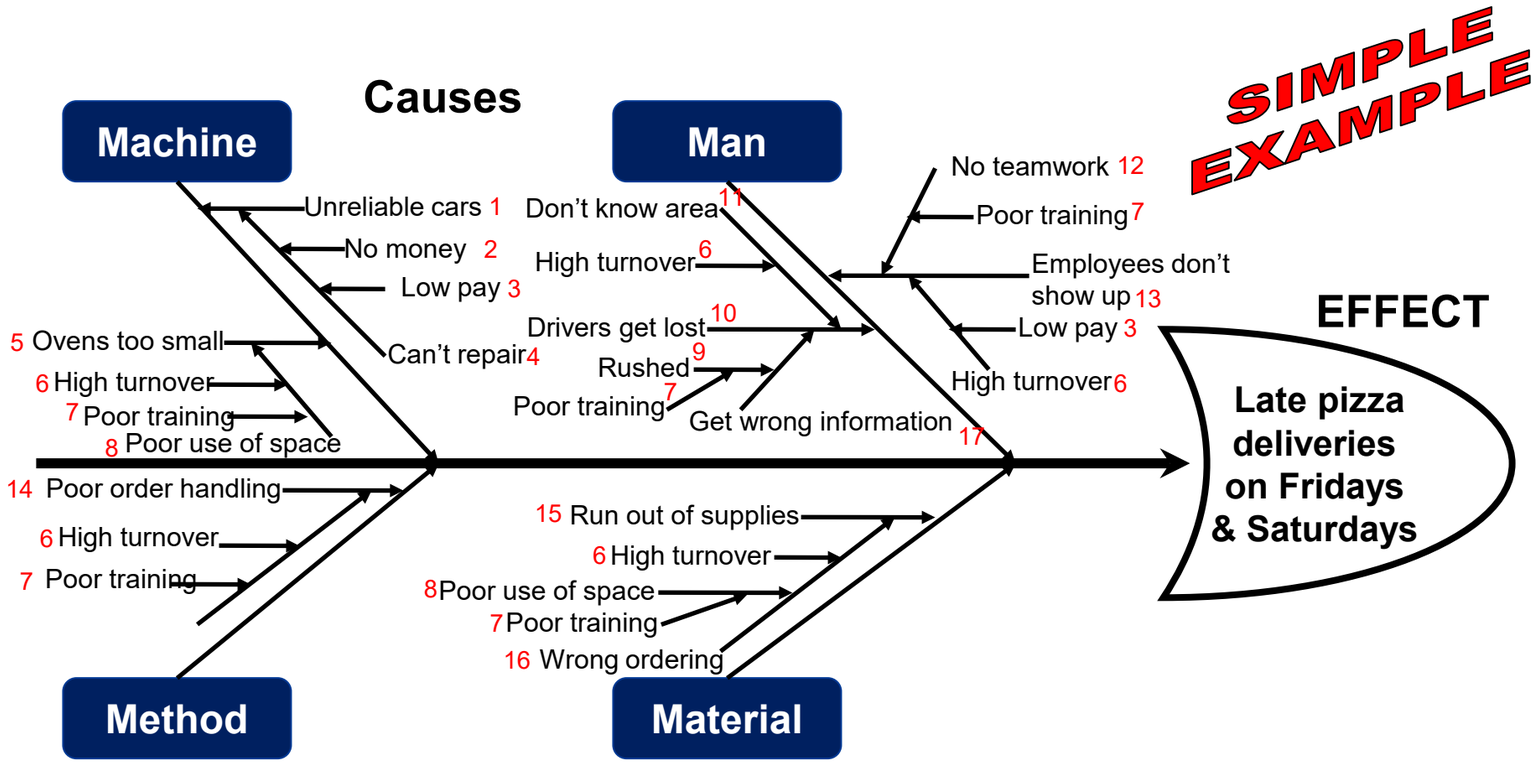


*PICK Chart

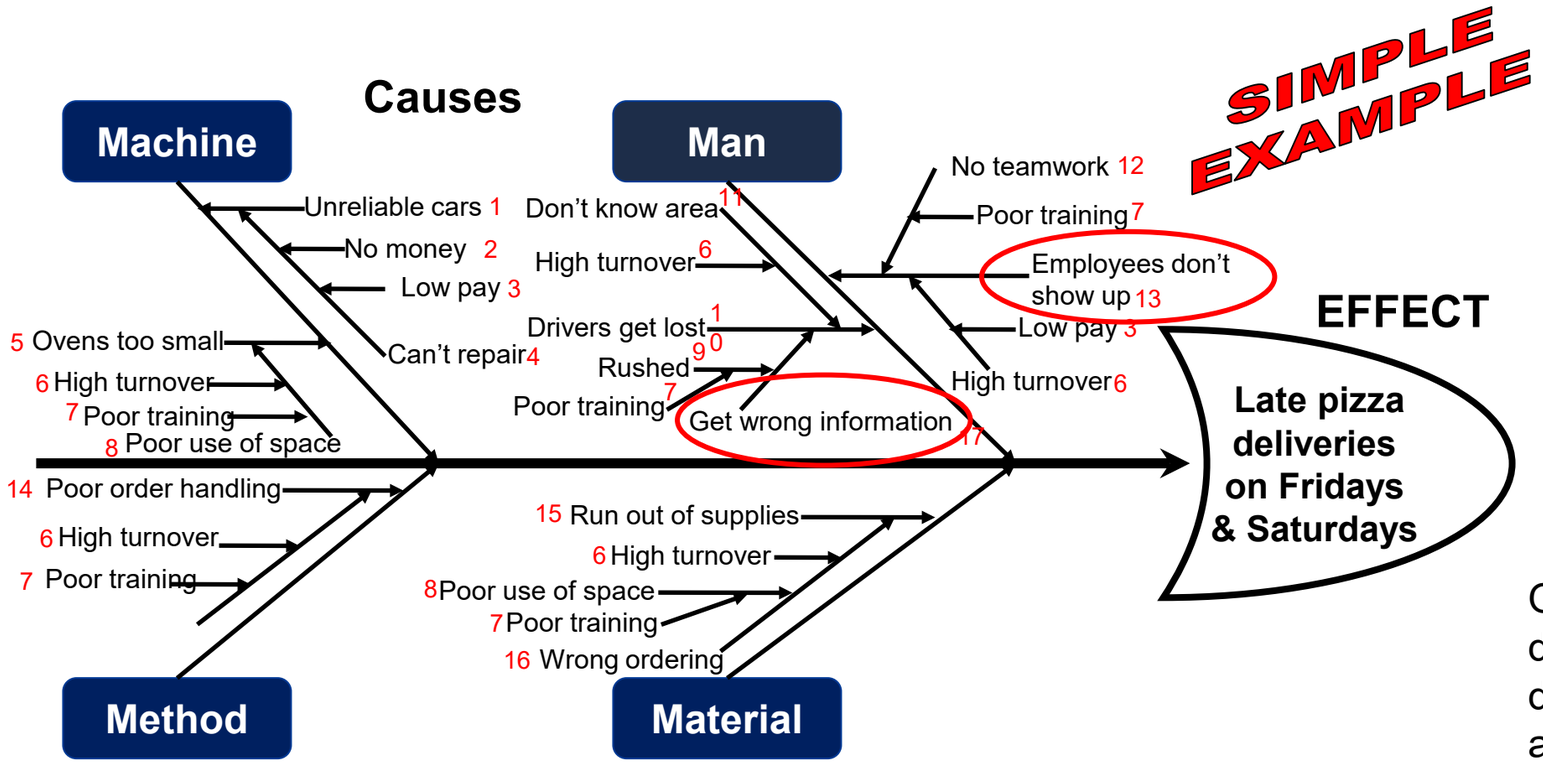
- Possible, Implement, Consider, Kill
- A visual tool for organizing ideas
- Helps identify which ideas can be implemented easily and have a high payoff
- Compares effort to benefit for each opportunity
- Fishbone and PICK chart can be used together



Fishbone Example-Number Each Cause

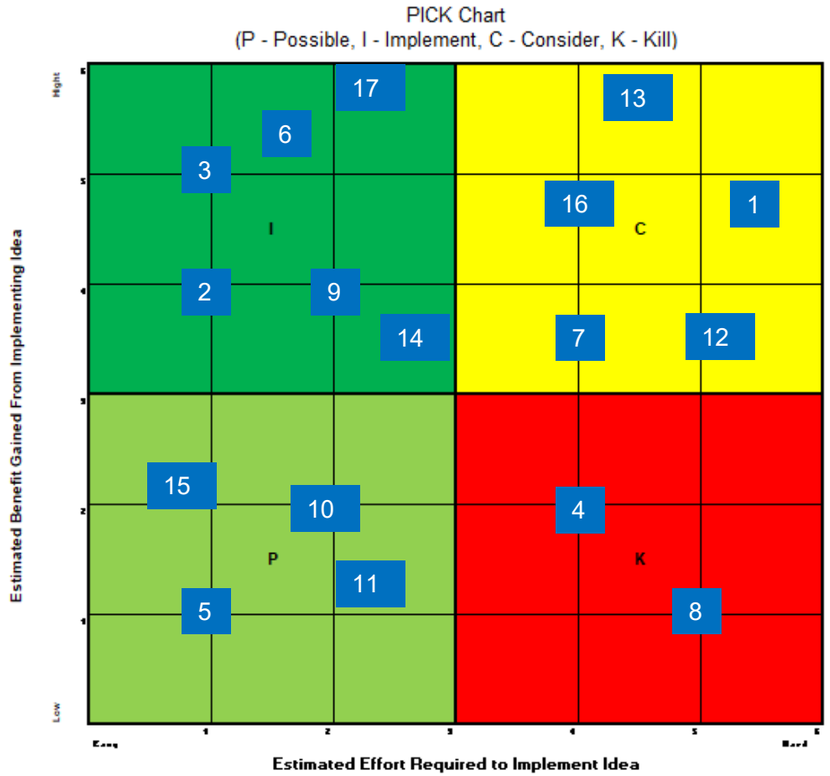


After Data Collection- ID Root Cause(s)

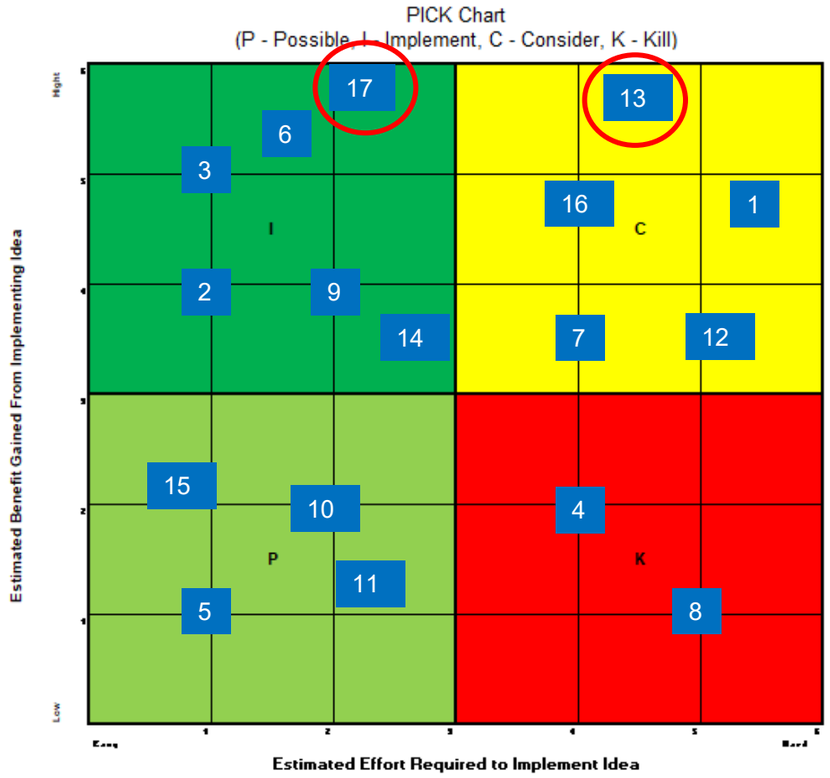


Out of the last 20 late deliveries, 8 were from driver having wrong address and 7 were from driver no show

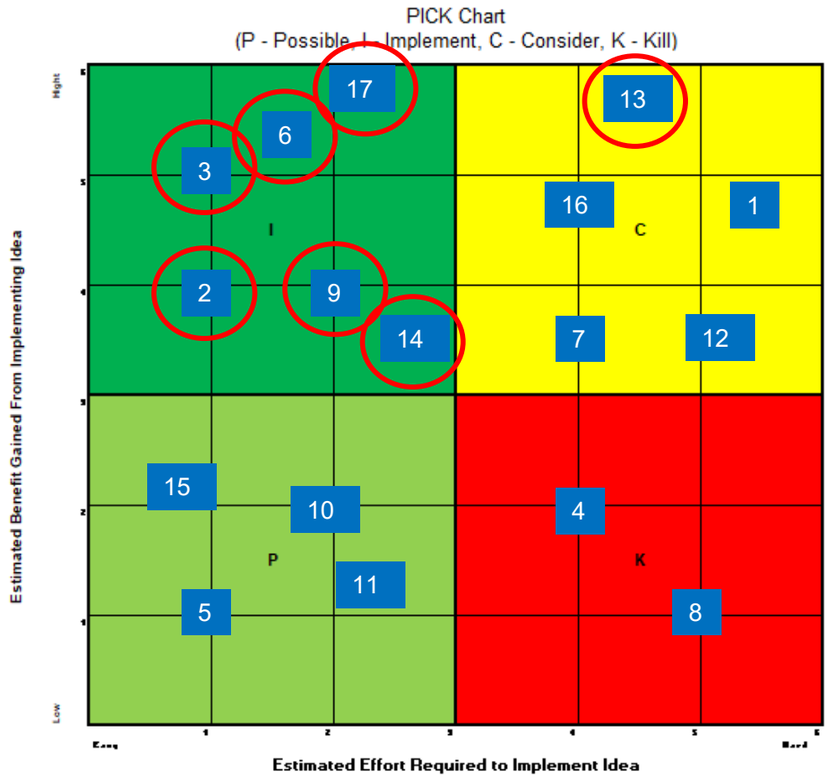
Fishbone to PICK Chart



ID Root Causes on PICK Chart

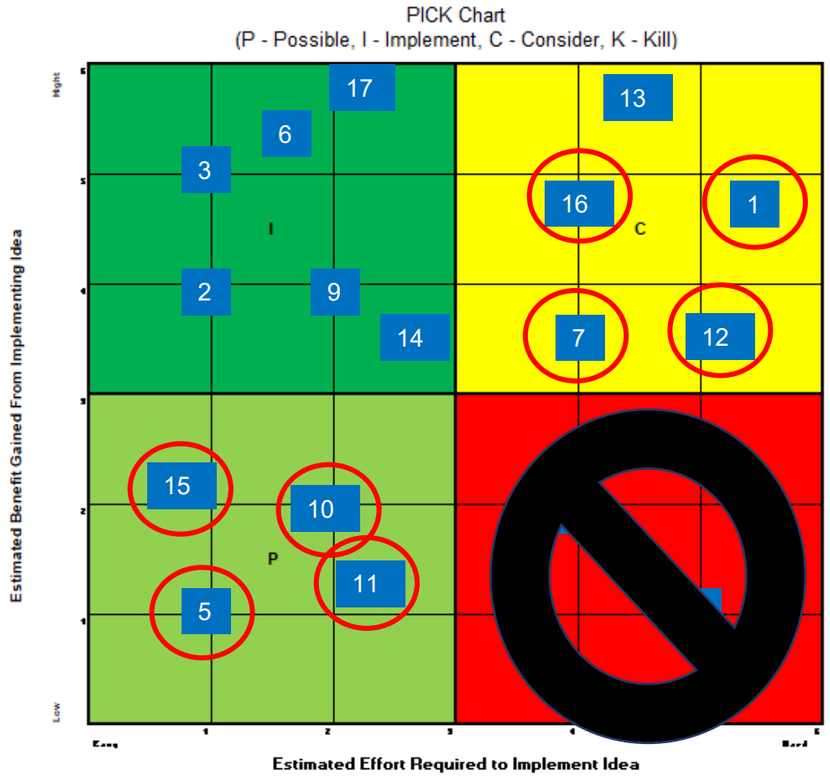


Countermeasures



- Countermeasure should directly attack root cause(s)
- Countermeasures should address “Implement” from PICK chart

Maybe You Can Do “Consider” and “Possible”



5-Why Analysis

5 Why's for Problem Resolution	
1. WHY?	
Answer:	
Evidence:	
2. WHY?	
Answer:	
Evidence:	
3. WHY?	
Answer:	
Evidence:	
4. WHY?	
Answer:	
Evidence:	
5. WHY?	
Answer:	
Evidence:	
C. Root Cause Of The Problem	

5-Why Analysis

- It peels away the many layers of a problem revealing the symptoms, which often leads to the root cause of a problem.

- Fixing the root cause of a problem is typically more cost effective & less expensive than fixing the symptoms!

The 5-Why Process

- Select what is the most likely potential cause from the Cause & Effect diagram
- Ask the question “Why” and Answer it!
- Continue asking “Why” until you believe your answers have reached the Root Cause (usually 5 times)
- Test the logic of your 5 Whys Results & Root Cause by stating “therefore” in reverse order

5-Why Story

- A few years ago, The National Monument Maintenance Department was faced with a terrible problem. The Lincoln Memorial was deteriorating at a faster rate than the other monuments. With the great value placed on these Federal Landmarks this is something that is closely monitored and in previous years had not been a problem. The maintenance department must be doing something wrong and was blamed for the problem.
- The leadership of the maintenance department was not satisfied with this conclusion and decided to perform a “5 Whys” analysis to determine the root cause of the problem. Here is the result of their analysis:

5-Whys Example

Why? *is the Lincoln Memorial deteriorating faster than the other monuments?*

Answer: It is being cleaned at nearly twice the rate of the other monuments.

Why? *is the Lincoln Memorial being cleaned more frequently than the others?*

Answer: Pigeons are making a “non-deductible donation” to old Abe Lincoln.

Why? *are the pigeons visiting this monument more than the others?*

Answer: To feed on the gnats and flying insects that typically gather early in the evening near the memorial.

Why? *are the gnats and flying insects gathering near this monument?*

Answer: They are attracted to the lights illuminating the Lincoln Memorial, which turn on 30 minutes before those at the other monuments.

Why? *are the lights at the Lincoln Memorial turned on 30 minutes earlier?*

Answer: The Lincoln Memorial is near the Whitehouse and the President likes to see Abe at sunset.

Root Cause: It’s the presidents fault!

Obeya Room

A Closer Look at Obeya Rooms:

- **Usually held in corporate office**
- **Used to visually see all current transformational projects**
- **Broken up into Operational Areas and functional areas**

Wow…That's A Lot!

- There are lots of tools that can be used for problem solving
- Just like any good carpenter, use the right tool for the job
- Do not use a sledge hammer to put in thumb tacks
- YOU DO NOT HAVE TO USE THESE TOOLS FOR ALL PROBLEMS
  - If there is a snake in your yard, you do not have to analyze its life history, just cut off his head!
  - However if another snake shows up, go find where they are coming from
- The 7-step problem solving process (and the tools) can be used with any size problem and will help attack the root cause

Capture Notes

Take a few minutes to fill out your notes and then take a 10-minute break

Problem Solving Simulation

Basics of the Game

- Objective: Construct a 13-story building in under 60 seconds with 1 or less defects
- The four suits represent the specific trades
  - Spades = Framers (first step)
  - Hearts = Hangers (second step)
  - Clubs = Tapers (third step)
  - Diamonds = Painters (fourth step)
- Each “floor” (row of cards) of the building is represented by the face value of the card (ace = first floor, 2 = second floor, etc. with the king = 13th floor)

Basics of the Game (cont'd)

- Each table needs a dealer, scribe, time-keeper, inspector, and 4 builders
- Dealer will shuffle cards and each group will receive a stack of 13 random cards
- Instructor will start the game, time-keeper will keep the time for each table, inspector will call out defects, and scribe track the data
- The first card that must be played is the Ace of Spades (first trade on the first floor), the last card that must be played is the King of Diamonds (last trade on the last floor)

Basics of the Game (cont'd)

- Cards are placed from lowest (Ace) to highest (King) according to their suit
- ♠ Framers cards may be placed independently of other suits, but must be placed in sequence from Ace (low) through King (high)
- ♥ Hangers cards must also be placed in Ace-King sequence and are only placed AFTER the framer card on any given floor
- ♣ Tapers cards must also be placed in Ace-King sequence and are only placed AFTER both the framer and hanger cards are placed for any given floor
- ♦ Painters cards must also be placed in Ace-King sequence and are only placed AFTER the framer, hanger, AND taper cards are placed for any given floor

Sequence Example

First card always has to be A♠ no other trades can build until framing is done. Once that is in place, framer can move to second floor 2♠ or the hanger can work on first floor A♥

A♠	A♥	A♣	A♦	
2♠	2♥	2♣	2♦	
3♠	3♥	3♣	3♦	**Defect! The painter cannot work before the taper is done**
4♠				
5♠				
7♠				**Defect! Cannot start the 7th floor until the 6th floor is done**

End of Game

A♠	A♥	A♣	A♦
2♠	2♥	2♣	2♦
3♠	3♥	3♣	3♦
4♠	4♥	4♣	4♦
5♠	5♥	5♣	5♦
6♠	6♥	6♣	6♦
7♠	7♥	7♣	7♦
8♠	8♥	8♣	8♦
9♠	9♥	9♣	9♦
10♠	10♥	10♣	10♦
J♠	J♥	J♣	J♦
Q♠	Q♥	Q♣	Q♦
K♠	K♥	K♣	K♦

Time stops when last card is played

Rounds

- **You are not allowed to talk to each other or collaborate**
- Build as fast as you can following all of the game rules
- Instructor will start game, inspector will call out all defects, timer will stop clock after last card is played, and scribe will write down total time and defects
- After Round - If you did not hit the goals (under 60 seconds and 1 defect) utilize A-3 to problem solve
  - Remember to define problem, current state, standard, gap, and goal
  - Complete steps 1-4 (Problem, GTS, Plan, Do) of the 7-step problem solving process
  - Implement countermeasures and run through again
  - Capture new results on step 5 (Check)
  - If you did not hit your goal, do step 6 (Act) and run again. Repeat until goal is achieved and then move to step 7 (Lesson Learned)

Questions

- Remember…
- The four suits represent the specific trades
  - Spades = Framers (first step)
  - Hearts = Hangers (second step)
  - Clubs = Tapers (third step)
  - Diamonds = Painters (fourth step)

Handout #1 for Problem Solving Simulation

STEP 1: PROJECT THEME
Problem Statement:

Standard:

Current State:

Gap:

Goal:

Scope:

Background:

STEP 2: GRASP THE SITUATION
Data Collection / Analysis Opportunities:

Project Sponsor:
Team Leader:
Team Facilitator:
Team Members:

STEP 2: GRASP THE SITUATION (CONT'D)
Opportunities Identified:

Root Cause Statement:

STEP 3: PLAN
Plan of Action Statement:

#	Measure	Baseline	Goal	Benefits
1				
2				
3				
4				

STEP 4: DO

	In Planning		On Track
	Off Track		Completed

#	Countermeasure	Status	Owner	Date
1				
2				
3				
4				
5				
6				

Team Name:

Date:

STEP 4: DO (CONT'D)

#	Countermeasure	Status	Owner	Date
7				
8				
9				

STEP 5: CHECK

✓	Goal Achieved (> 98%)	O	Approaching Goal (75% to 97%)	X	Goal Not Achieved (<75%)

#	Measure	Baseline	Goal	Rd 1	Rd 2	Rd 3	Status
1							
2							
3							
4							

STEP 6: ACT

STEP 7: LESSONS LEARNED

Handout #2 for Problem Solving Simulation

	Total Time	# of Defects
Round 1		
Round 2		
Round 3		

Reflection

Make note of some issues you are having that you think can be solved with 7-Step Problem Solving…Take 10

Let’s Talk About Waste in the Field

PROBLEM SOLVING IS ALL ABOUT ATTACKING WASTE

What is Waste?

- Anything that consumes resources or adds cost, without adding value to the customer
- To understand Waste, you must first understand the different states of work that are inherent in all processes
  - Value Added Work
  - Non-Value But Necessary Work
  - Non-Value Added Work

ALL OF OUR EMPLOYEES ARE ALWAYS IN ONE OF THESE 3 STATES

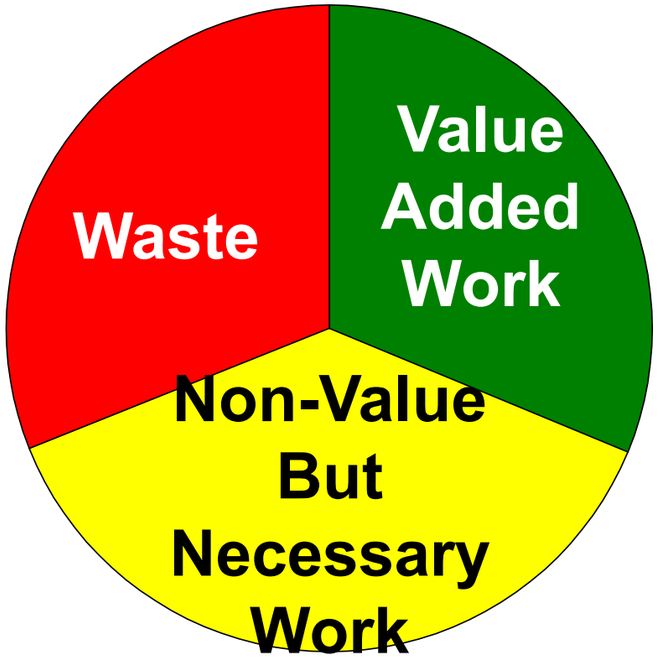
*3 States of Work

- Value Added Work
  - Activity that the customer is willing to pay for
  - NGi gets paid to build walls – that is what our customers pay for
  - The customer alone determines value, not us
- Non-Value But Necessary
  - Operations necessary for the job but does not add value to the customer
  - Rules or laws that are required and cannot be reduced
- Non-Value Added Work
  - Any activity that is not required and that the customer is not willing to pay for
  - Non-Value Added Work = Waste

Waste Wheel

Waste – Unnecessary activities in the process

Non-Value But Necessary Work – Operation necessary for the current job, but does not add value for the customer

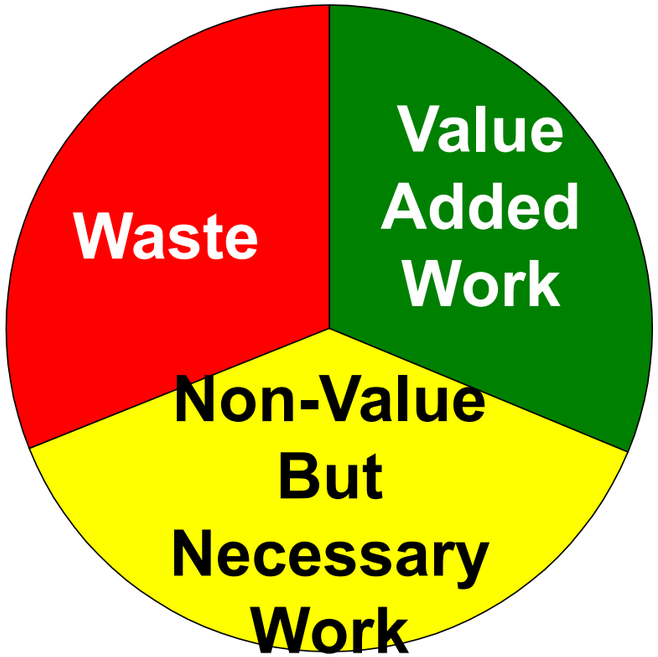


Value Added Work – Adds value for the customer

Waste Wheel - Examples

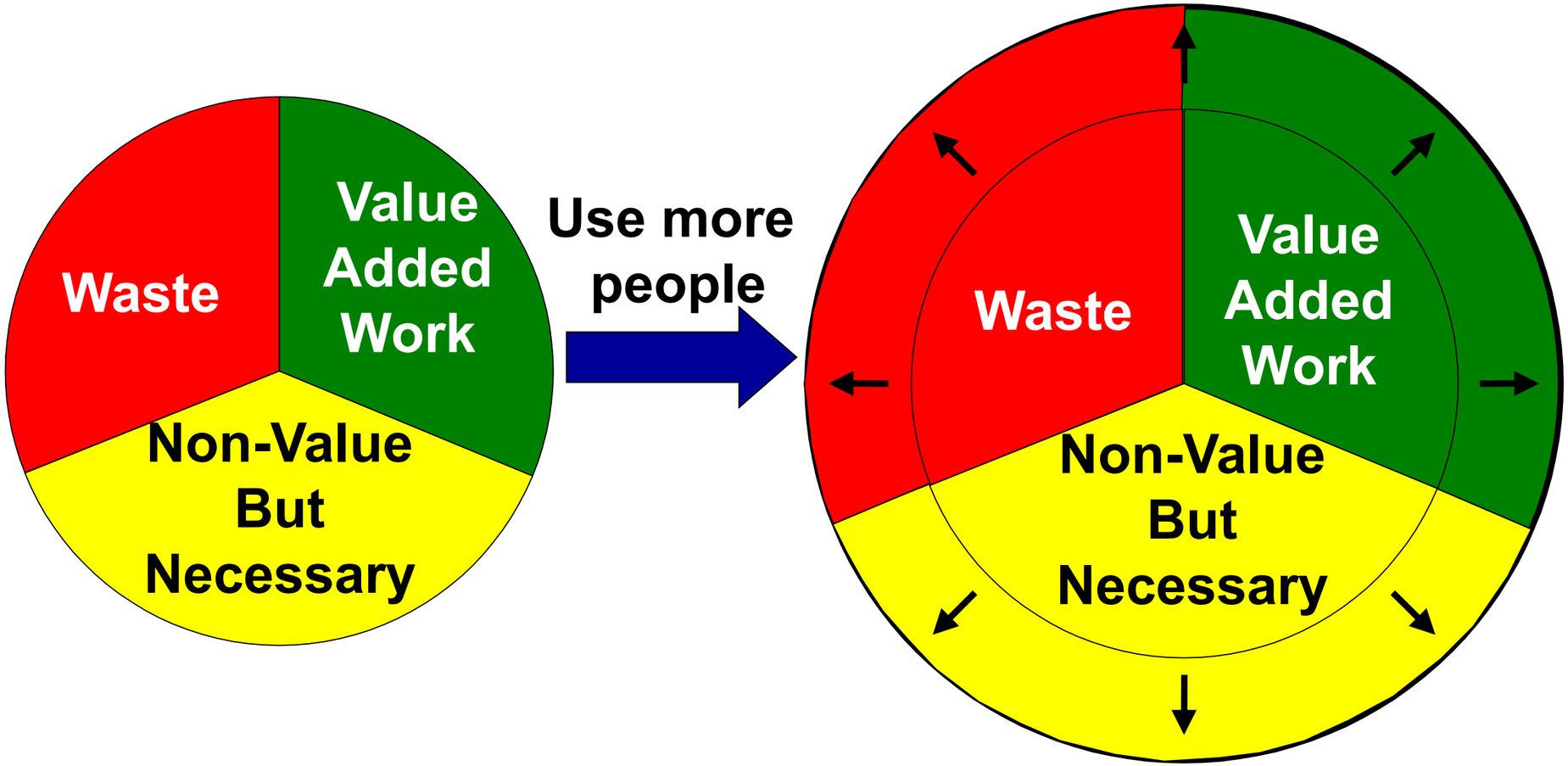
Waste – Waiting for information, looking for tools, walking back and forth to get material, re-work.

Non-Value But Necessary Work – Breaks, inspections, filling out paperwork, fire watch.

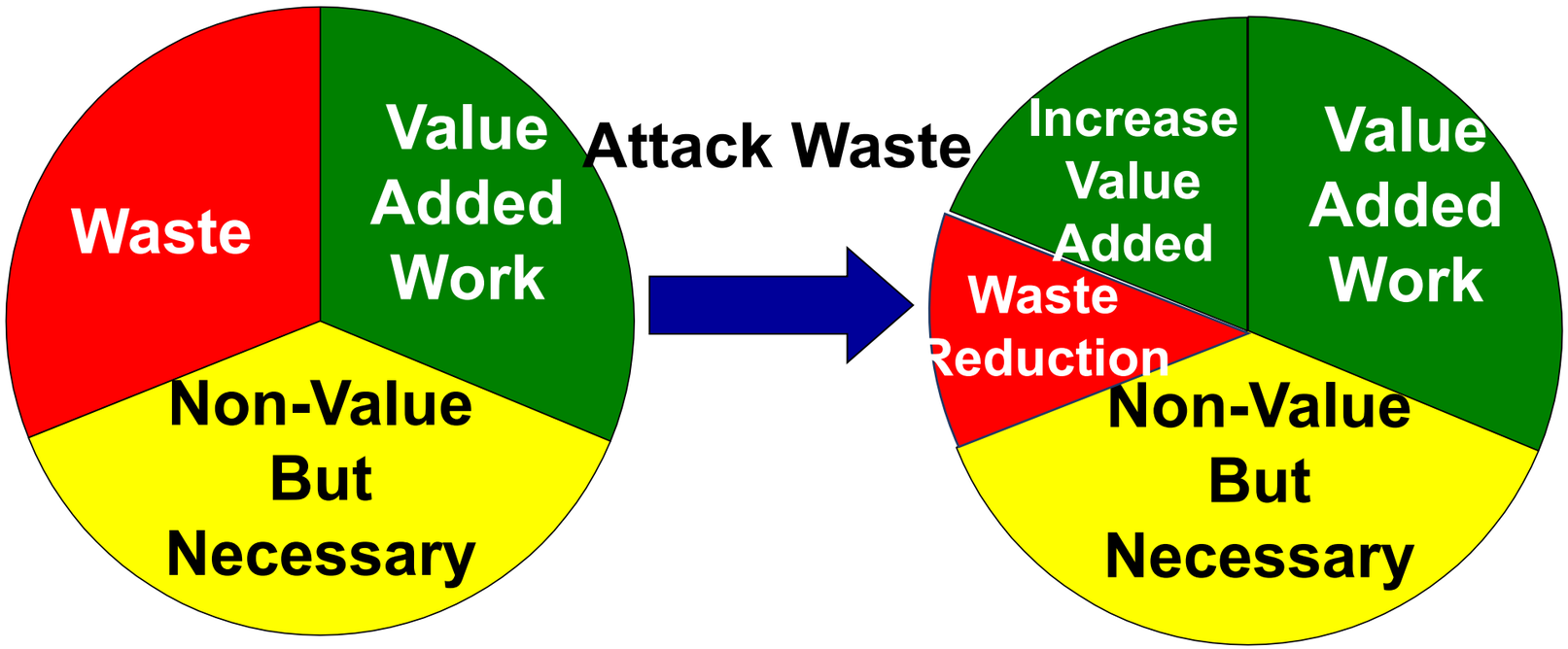


Value Added Work – Doing work on the wall

Current Way to Add Value



Best Way to Add Value



Who Adds Value?

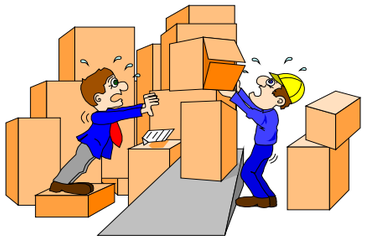
- Most of us do not add value to the customer because we are not putting work in place
- Your job as a leader is to FIND THE WASTE!!!!!!
  - You must walk the job site and watch your employees
  - Find out what takes them off the wall and attack it

- We will never eliminate all waste; we are only trying to reduce it as much as possible

8 Types of Waste

Transport

Inventory



Motion

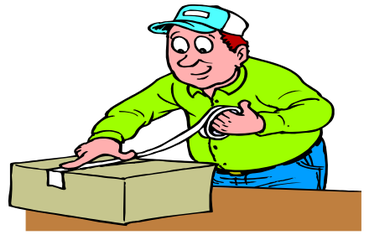
Waiting

Defects

Over-Production

Unused Employee Creativity

Over-Processing



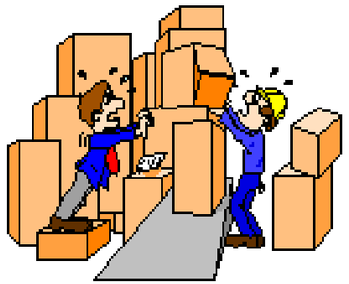
Transportation

Unnecessary transportation of material and/or information based on the minimum required for smooth Just In Time processing.

Typical Types of Wasted Transport

- Moving material to an interim staging area before moving it to the final destination or area
- Moving material, finished goods or work-in-process more or farther than is necessary
- Double handling material

Inventory



Excess product, stock, materials, supplies, equipment or space greater than what is required by the system.

Excessive Inventory is Expensive and…

- Is subject to obsolescence
- Freezes capital from investment opportunities
- Requires more work (walking around and/or stacking)
- Requires additional resources (space & equipment)
- Is a symptom of a bigger problem – Poor planning of orders

Motion

Movement of people or equipment that do not add value to the process.

More About Motion

1. **Activity does not equal productivity**
   - Just because you are moving does not mean you are adding value
2. Spending your time looking for material/tools is not work
3. Excessive and repeated motion can lead injuries

Waiting

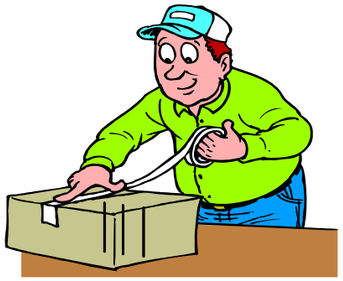
Waiting is a clear “Waste” for everyone!

Idle time such as waiting for information / material to arrive / waiting for a meeting to start

Waiting occurs when…

- Processing time to complete the task varies from the plan
- Resources are improperly or poorly scheduled
- Unreliable handoffs between processes
- A process is out of balance
- When upstream and downstream processes are not synchronized

Over-Processing



Doing more work than necessary to meet customer requirements.

Typical causes of "Over-Processing"

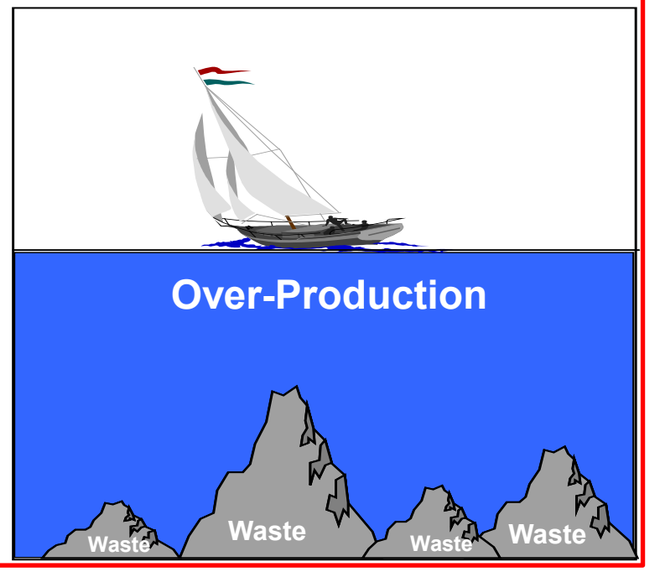
- Not understanding customer requirements
- Non-value added activities beyond the required specifications
- Completing steps that are not required

Over-Production

Producing more than is required or using excessive resources to meet actual customer demand

Overproduction is the worst type of waste…Why?

1. Hides all the other wastes
2. How does simply adding more people affect:
   - Schedule – will we get caught up?
   - Cost – will we spend more? Why?



Defects

To work over again, to revise or to repeat a process usually in order to correct an error.

Typical Causes of "Defects"

- Bad information
- Unorganized work environment
- Poor visual management

Unused Employee Creativity

Untapped potential and creativity of the people.

Typical Types of Unused Employee Creativity

- Not valuing your employee's thoughts and ideas
- Not harnessing their potential to identify and eliminate waste
- Using employees on a task without training
- Using employees on a task that are over-trained

Point of Use

- Defined as having material, tools, information, and workers located exactly where the work is being done
- 4 Requirements for Point of Use of material
  - Within 40’
  - Right Type
  - Correct Amount
  - On Time
- Which wastes will Point of Use help reduce?

*TIMWOOD-U

- T-transportation
- I-inventory
- M-motion
- W-waiting
- O-over processing
- O-over production
- D-defects
- U-unused creativity

You Name the Waste

- Using 100 screws to put in a 4X8 sheet of dry wall
  - Over-Processing
- Coming back to the gang box after rolling out
  - Motion
- Taking screws out of a stud to move it over a half inch
  - Defect
- A meeting that is supposed to start at 6:45 am that starts at 6:50 am
  - Waiting

You Name the Waste

- Moving tools from the gang box on 1st floor to 2nd floor
  - Transportation
- Telling your crew to get to work when they have a suggestion
  - Unused employee creativity
- Stacks of studs that are laying on the job site
  - Inventory
- Laying out 150 feet of extra track when the task was 50 feet of framing
  - Overproduction (How can this be bad?)

Waste Walks

- Waste Walks
  - Daily walk to ensure all of your teams will hit their task and goal for the day
  - Foremen should walk the job every day, all day, looking for waste
- **DO NOT JUST ASK THE CREW "YOU GUYS GOOD?"**

Video Oct 14 16 10-18-16 AM.mp4

- Your job is to be in the field being a servant leader to your crew

Daily Waste Walks

- First thing in the morning, after the daily huddle, to ensure crew is set up:
  - **Required to be documented on Smart Sheet app**
  - **Minimum of each team 3 times per week**
- Teach your teams waste to make them **WASTE KILLERS**

Mid-Day Check

- Around the middle of the day, check on each crew
- Evaluate if they are on track for the day’s goal
- Make an adjustment if the team is not on track

End of Day Check

- At the end of the day go check what got done
- How is the quality of the work?
- How much work was put in place?

Foreman Waste Watch

- Formal 5-minute observation focused on finding waste, analyzing it, and reducing it
- Target the crews that are struggling with production/quality
- Forces the foreman to go watch the crew to observe what puts them into “non-value added” part of the wheel

Waste Walks

- Let’s look at the waste walk form and Lean dashboard

https://app.smartsheet.com/dashboards/7fjGpxP8vx9gh7CgqXPv7H8vrw33VcjRVf9Phmp1

Reflection

- How does waste relate to problem solving?

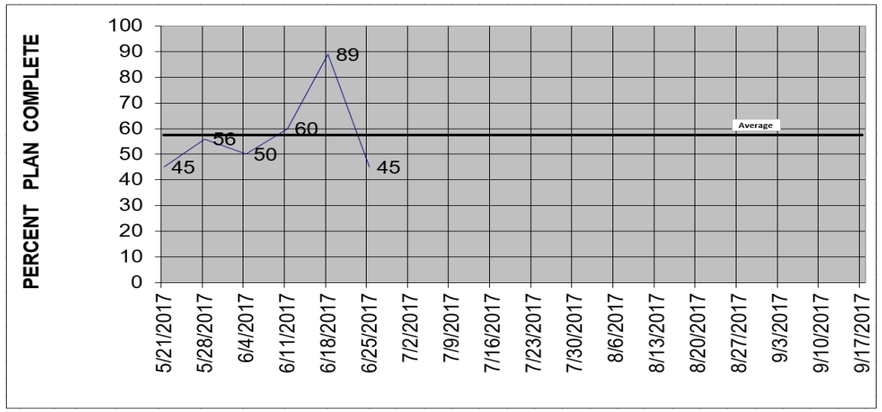
Data Collection Plan

- Spend time at the beginning developing a plan to collect the correct data
  - Start with a hunch
  - Decide how you are going to prove your hunch
    - Do you already have the data collected?
    - How will you collect the data?
  - Determine how you will show the data
- Conduct a Go Look, Go See
  - Watch the current state without influencing the process
  - Make no assumptions, observe the entire process

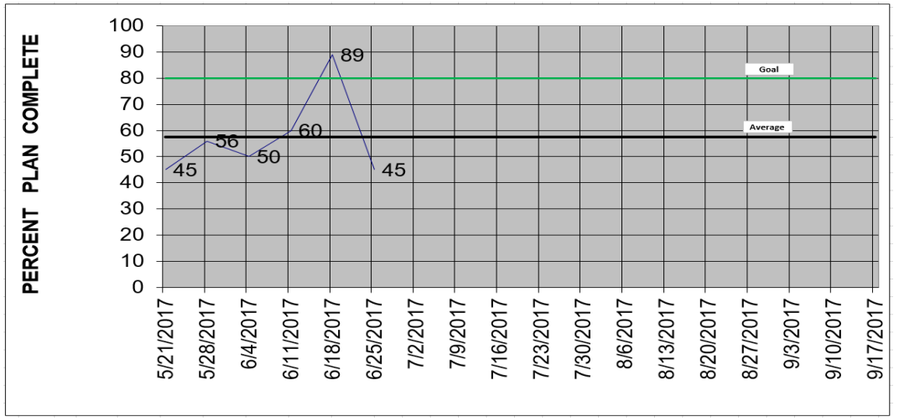
TRY NOT GO INTO IT WITH A SOLUTION IN MIND

Data Analysis Tools

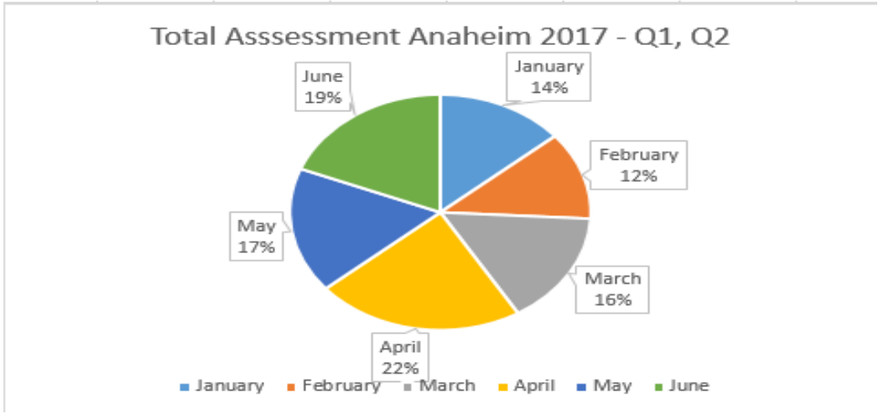
Run Chart



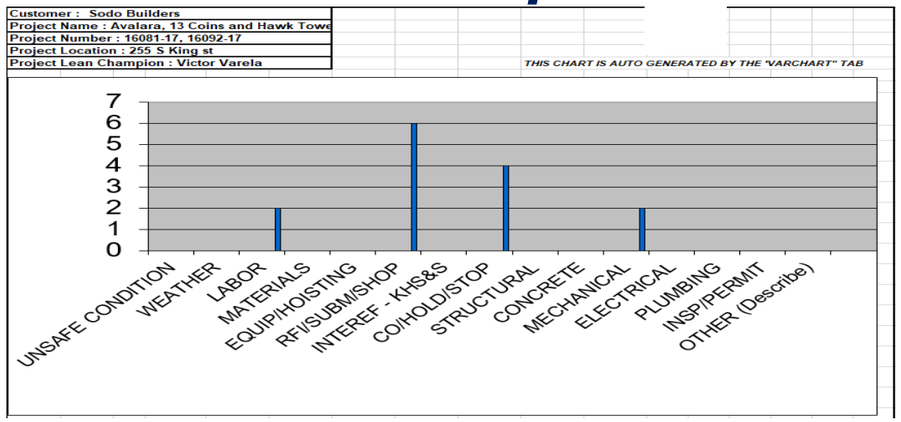
Control Chart



Pie Chart

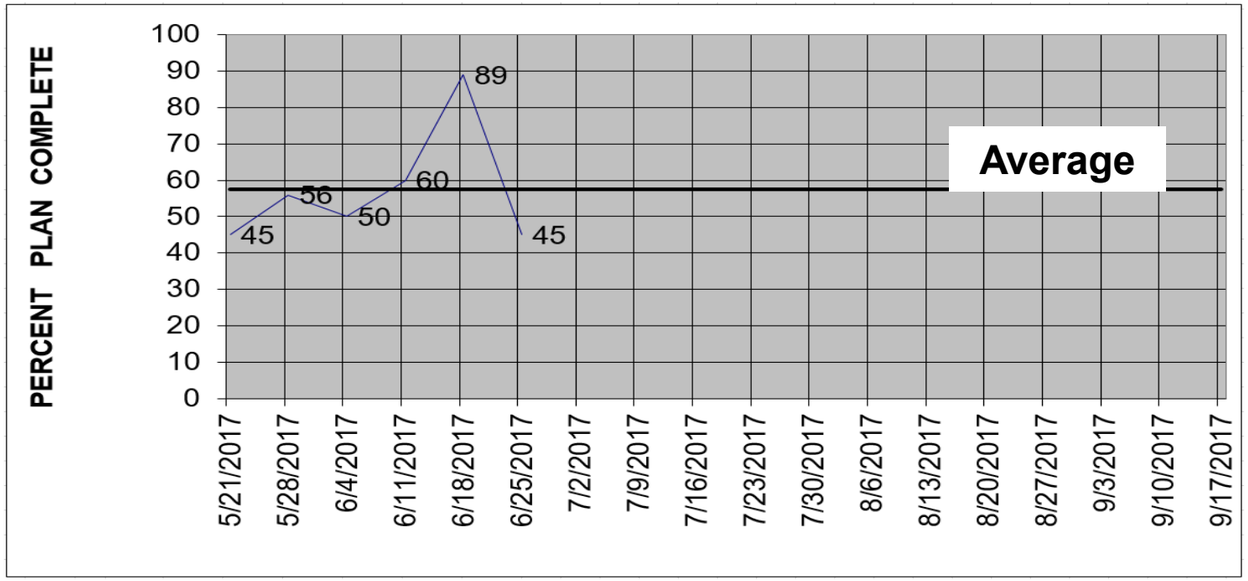


Bar Graph



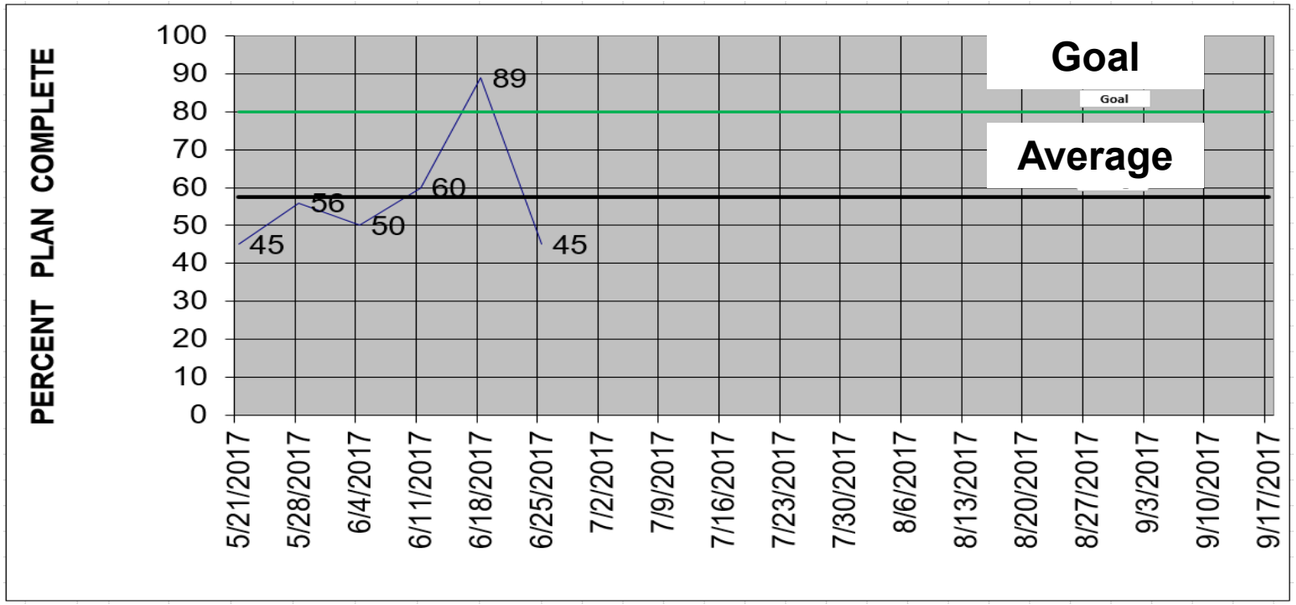
Run Chart

- A plotted graph measuring process performance data over a period of time



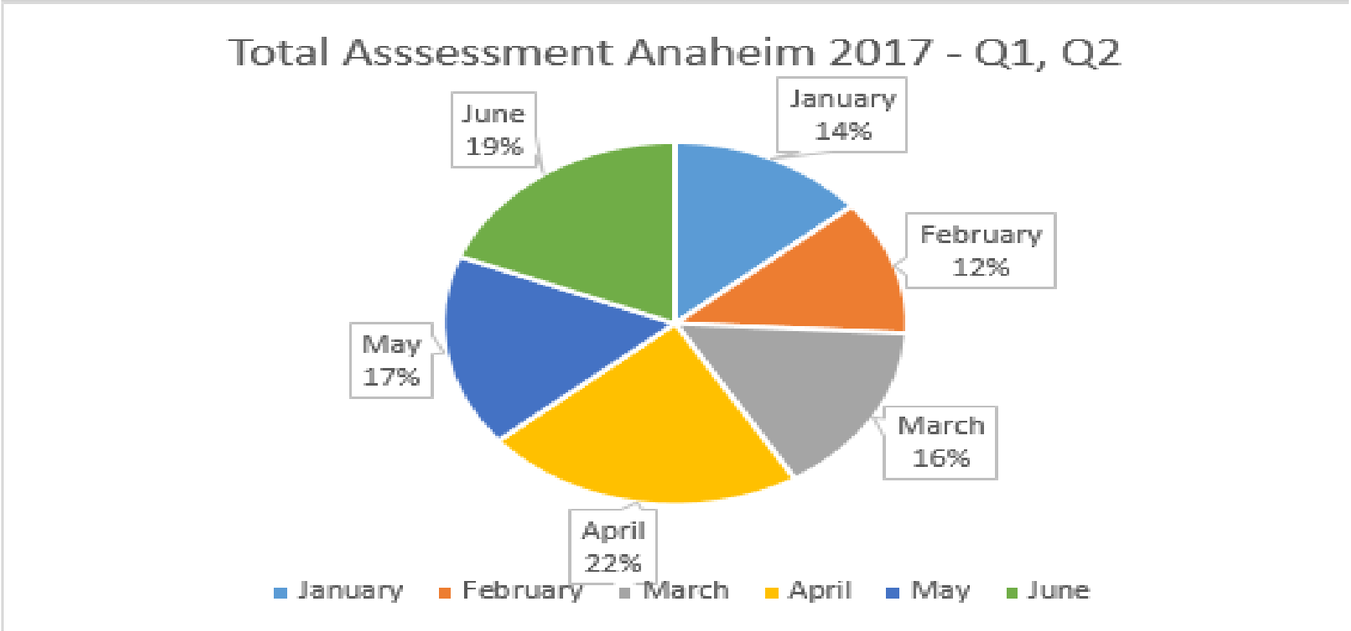
*Control Chart

- An advanced Run Chart that measures process performance & whether or not the performance is in or out of control



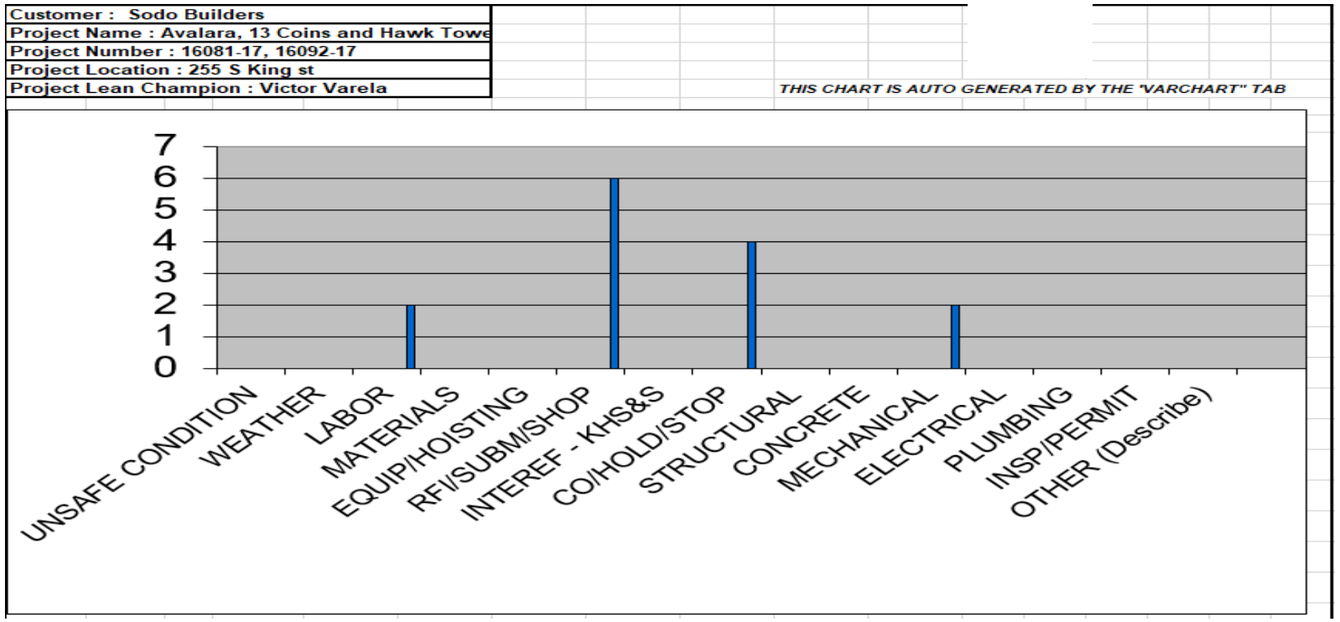
Pie Chart

- A circular chart that represents relative frequencies of occurrence according to type



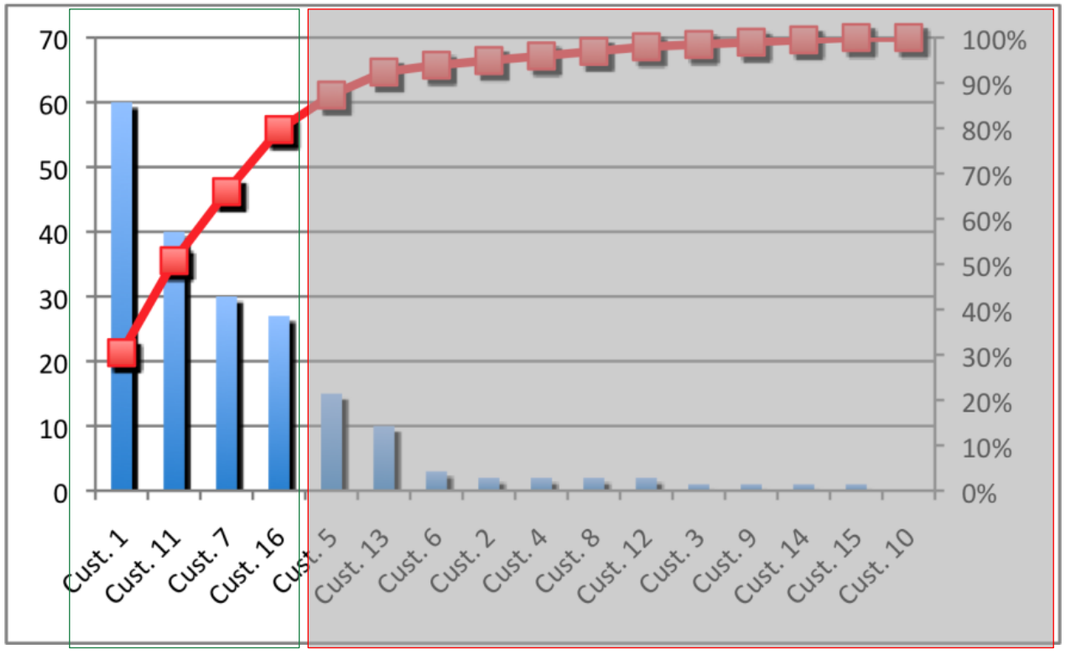
Bar Graph

- A diagram in which the numerical values of variables are represented by the height or length of lines or rectangles of equal width

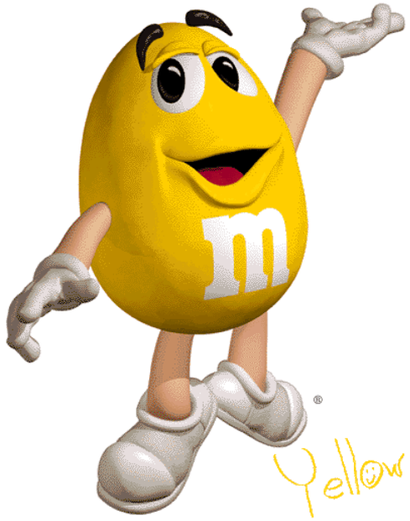


*Pareto Chart

- A bar chart that distinguishes, in descending order, the relative importance of problems
- The single most common tool used in problem solving
- 80% of problems usually stem from 20% of the sources
- Used to distinguish between the “vital few” vs the “useful many”



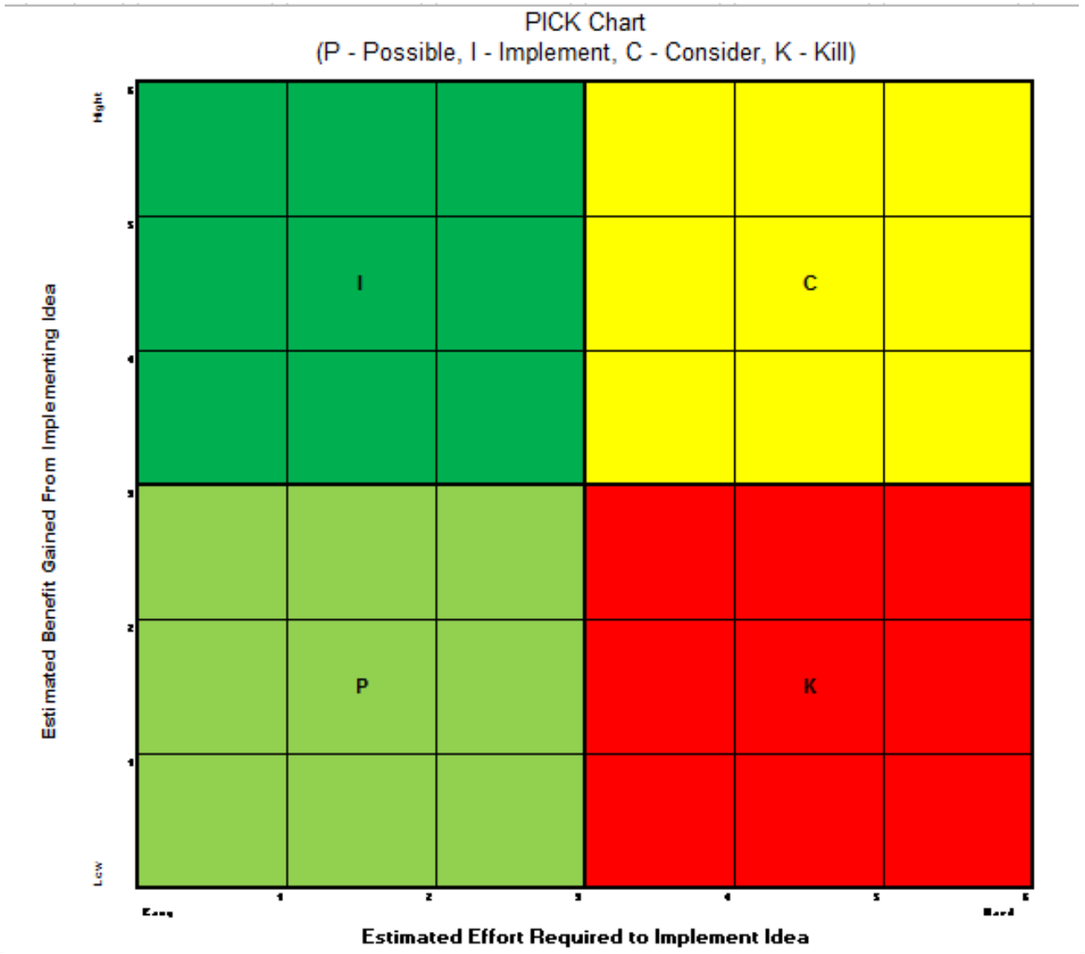
Pareto M&M's Exercise



Discussion

- Where do you have concerns about problems that need to be resolved?
- How will you prove they are problems?
- What is your plan to “Grasp The Situation”?
- Are these quick wins, problem solving events, or long term initiatives?

How Should You Select Projects?



Questions

Capture Notes

Take a few minutes to fill out your notes

Plus/Delta

+	Δ

Contact Me

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Lean Director

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