



Day 2

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**DAY TWO**

**MAKING THE INVISIBLE VISIBLE**

# REVIEW OF DAY #1

## Carousel discussion

- Small groups at stations
- Discuss the topic/question at your first station, scribe top 3 to 5 major points
- Move to next station when time is called
- Repeat
- At last station, review all comments and summarize.
- Report out



# DAY #2: Making the Invisible Visible



## We Will Cover

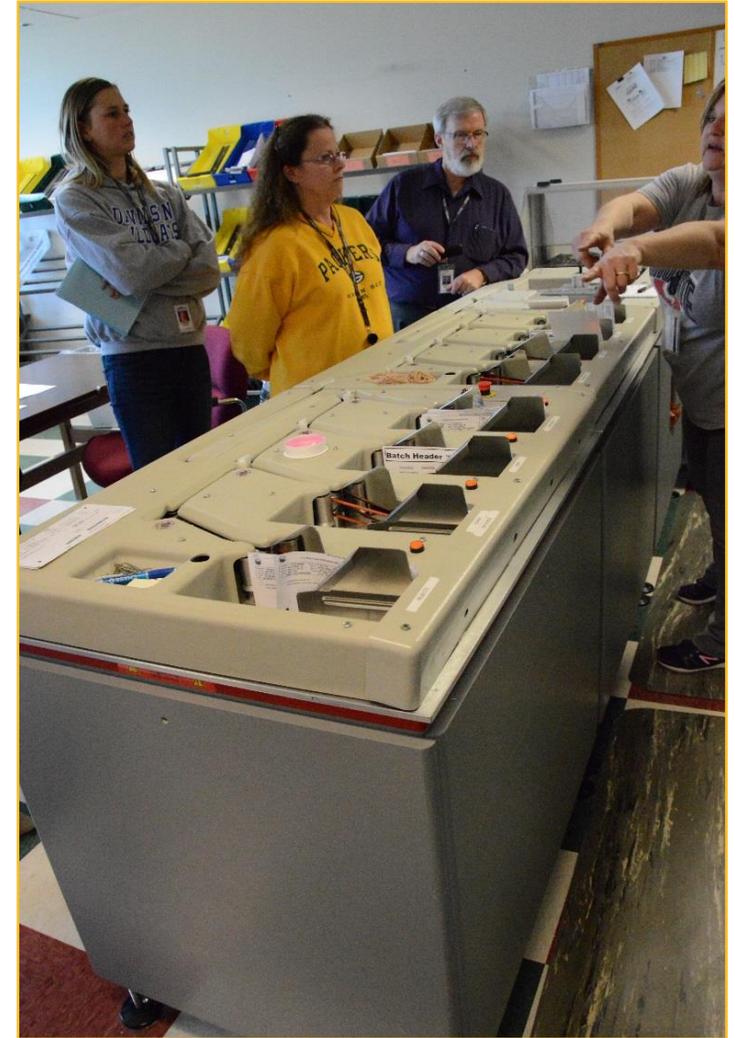
- Gemba
- Process Mapping
- Identifying Waste
- Value Add/Non-Value Add
- Interpreting a Process Map
- Metrics and Data Collection
- Root Cause Analysis - Fishbone Diagram
- 5S
- Teams and Team Dynamics



# Making The Invisible Visible: Gemba

# GEMBA:

“Where the Work Gets Done.”





# Process Mapping

# PROCESS MAP

A tool used to display the current process and information from the customer request to the delivery of the product or service to the customer. A picture of the process.



**VIDEO:**

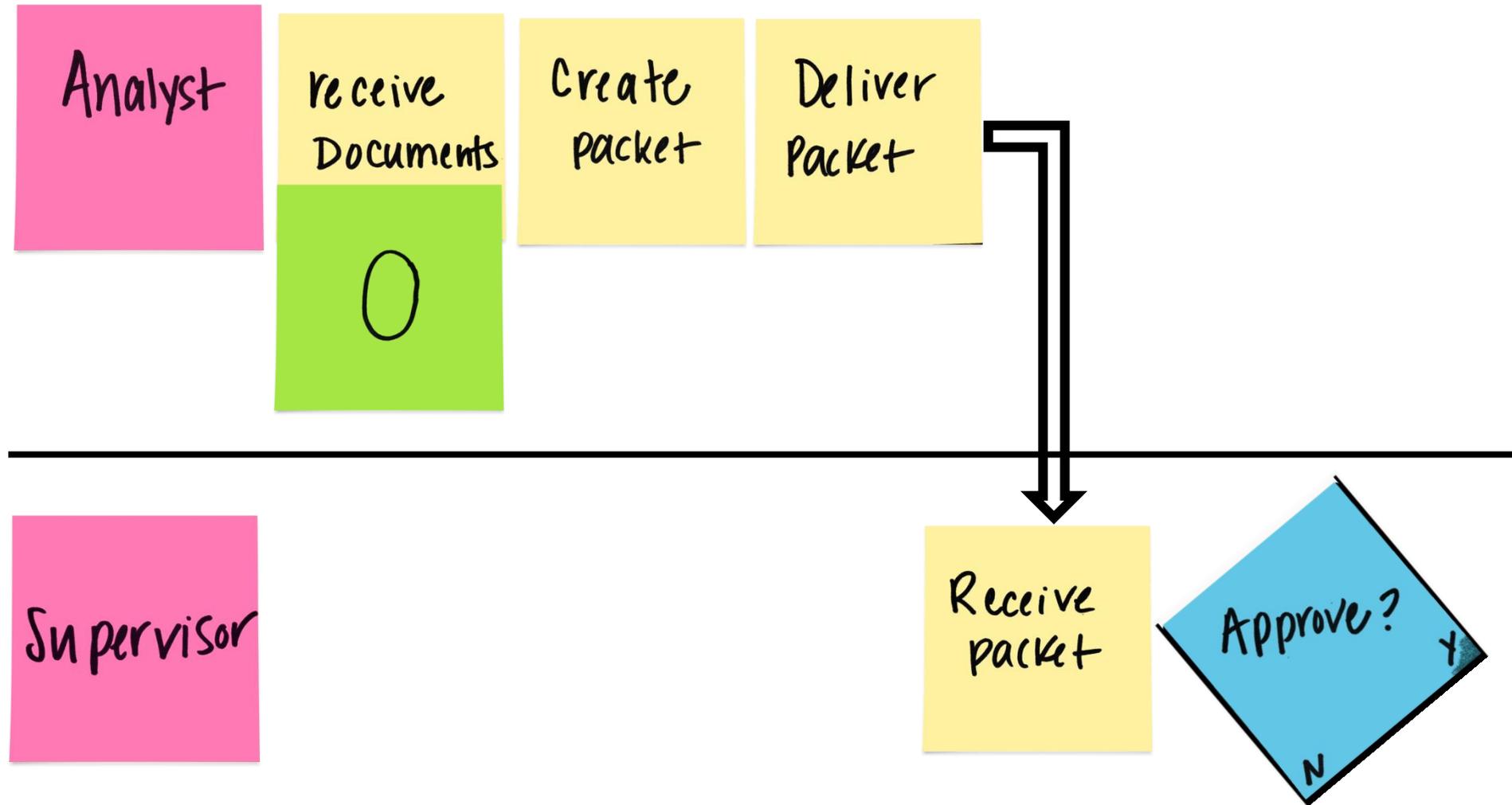
Process Map

**PLAY TIME:**

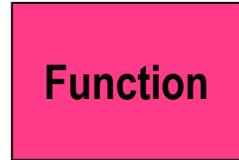
5 mins

# PROCESS MAPPING

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# PROCESS MAPPING



## Process Map Key

Different functions of the process



Beginning and end points of the process



Any task / activity where work is performed



Places where information is checked against established criteria (standards) & decision made on what to do next



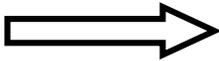
Any time information is waiting before the next process or decision (i.e. in-baskets, out-baskets, waiting to be batched)

# PROCESS MAPPING

## Process Map Arrows



Used between tasks performed by the same person or area, but no physical movement has occurred



Indicates physical movement of information/product from one function to another

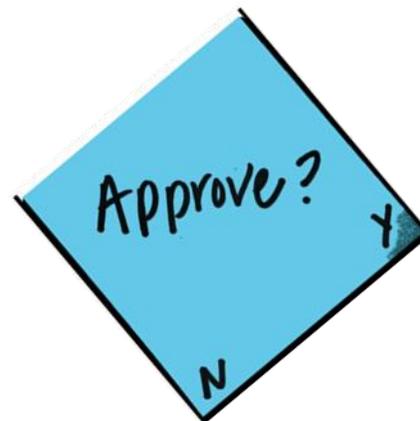
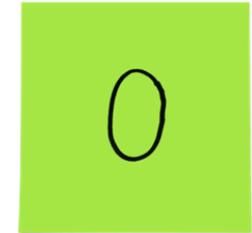


Demonstrates electronic movement of information from one person/function to another

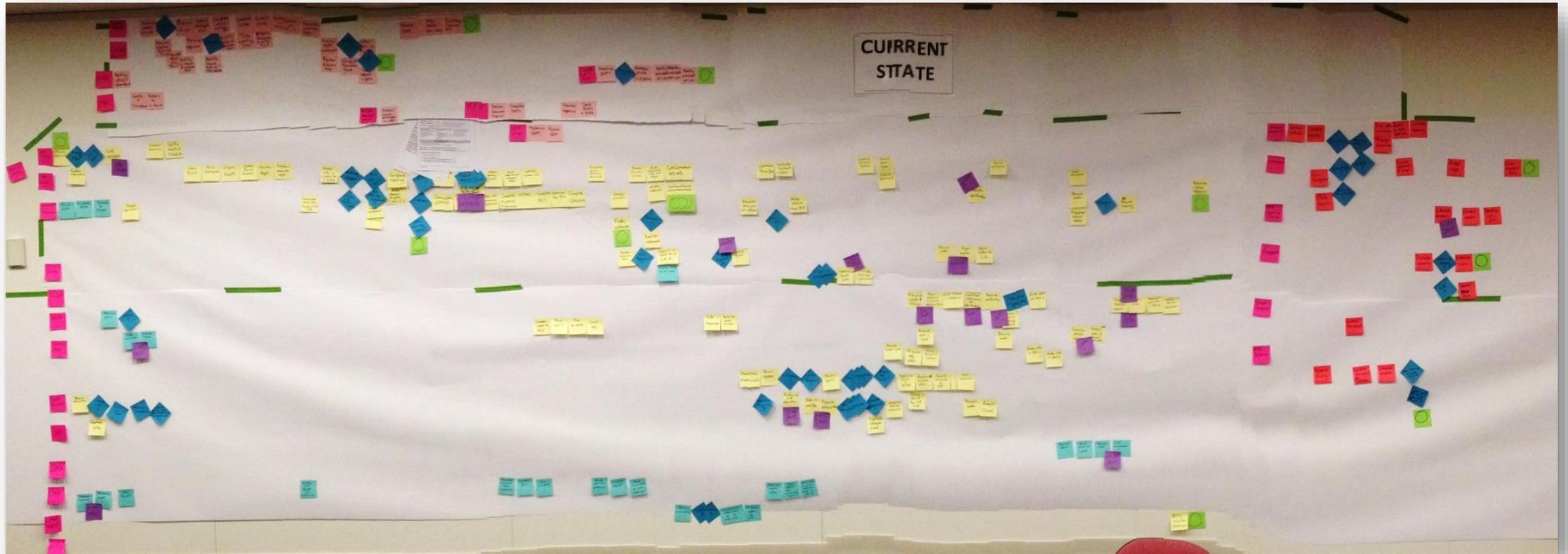
# PROCESS MAPPING: TIPS

0

- Use the 80/20 Rule
- Use letters, numbers, or stickers to connect loopbacks
- Use different color Post-it notes when mapping multiple groups or use a different space on the map
- Draw lines in with a pencil first before using the marker
- One Voice!
- Write tasks as Noun-Verb/Verb/Noun format
- Stay out of the Weeds!!!!



# PROCESS MAP



# PROCESS MAP: CHOCOLATE CHIP COOKIES

## Use SIPOC from Yesterday

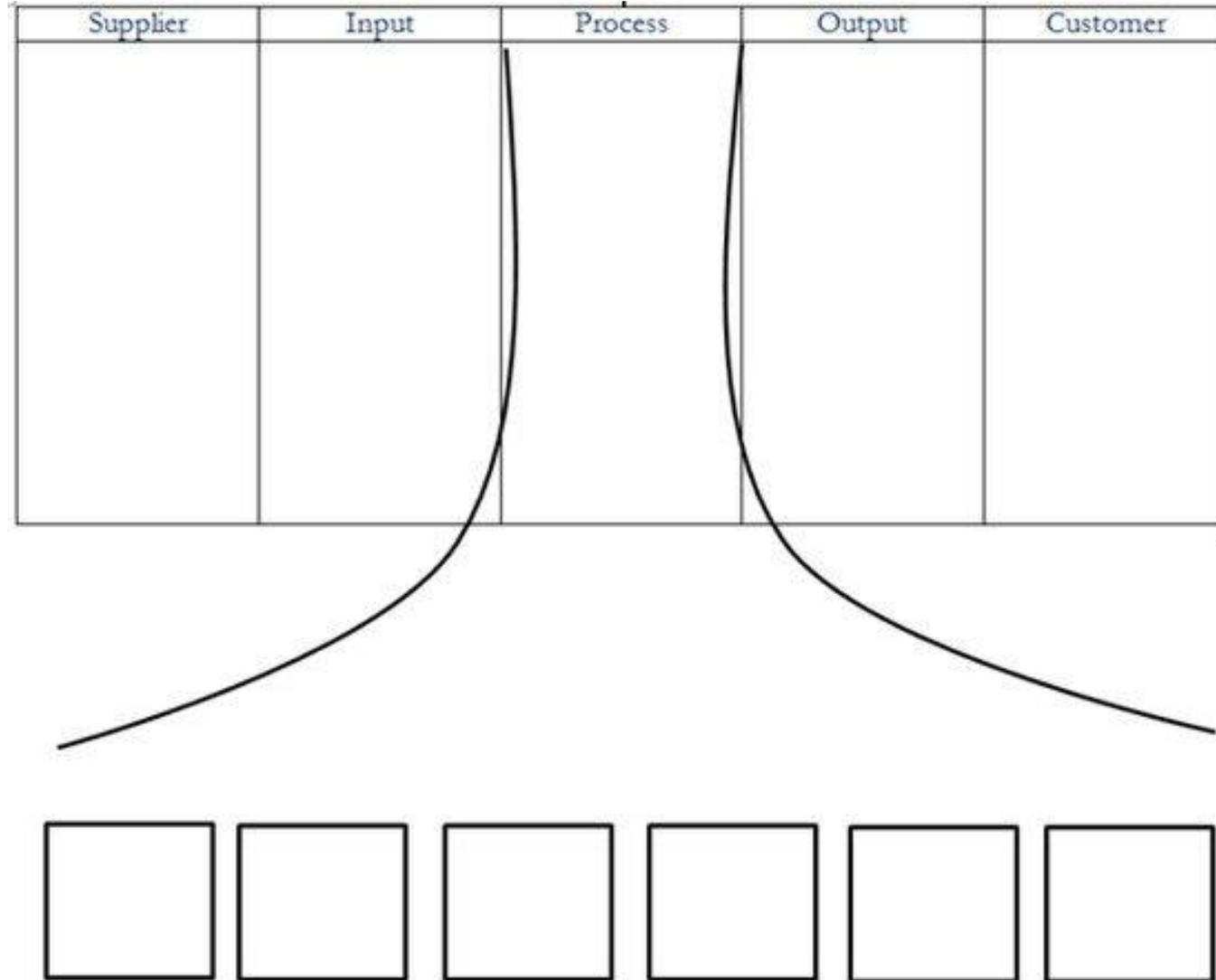
Develop a Process Map for Baking Chocolate Chip Cookies

- 1<sup>st</sup> Step in the Process
- Last Step in the Process
- Functions
- Tasks
- Decisions
- Delays



# DOP Process Mapping – Start with your SIPOC

Always Start  
with the  
Process!



# DOP PROCESS MAPPING





# VA-NVA-NVAN Waste

# VA, NVA, NVAN

## Value Added (VA)

Transforms information into services and products the customer is willing to accept

VA Activities Must Meet Three Requirements:

- Done right the first time
- Transformational
- Customer is willing to *pay* for

**\*1-5% of the Process**



# VA, NVA, NVAN

## Non-Value Added (NVA)

- Consumes resources
- Does not directly contribute to service
- Customer does not care



# VA, NVA, NVAN

## Non Value Added but Necessary

- Customer does not care
- Required to perform the step by current statute or law



# TIM U WOOD



## Transportation

Unnecessary movement of products & materials



## Information/Inventory

Unnecessary storage of products & materials



## Motion

Unnecessary movement by people (e.g., walking)



## Underutilization

Underutilizing systems and people's skills & knowledge



## Waiting

Wasted time waiting for the next step in the process



## Overproduction

Production that is more than needed or before it is needed



## Over Processing

More work or higher quality than is required by the customer

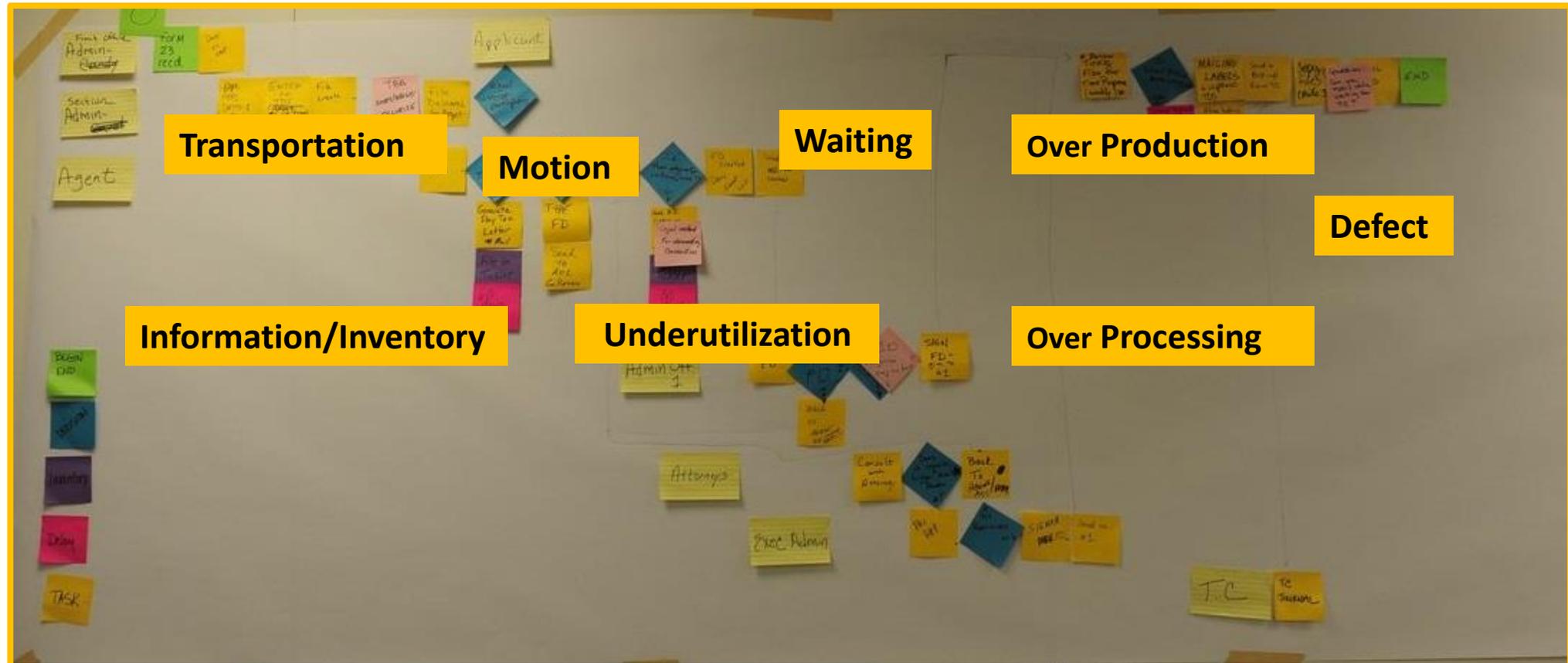


## Defects

Efforts caused by rework, fixing mistakes, and incorrect information

# TIM U WOOD

## Identifies Waste in a Process





# Interpret A Process Map

# INTERPRET A PROCESS MAP

The More you Map....  
the more you see common process issues

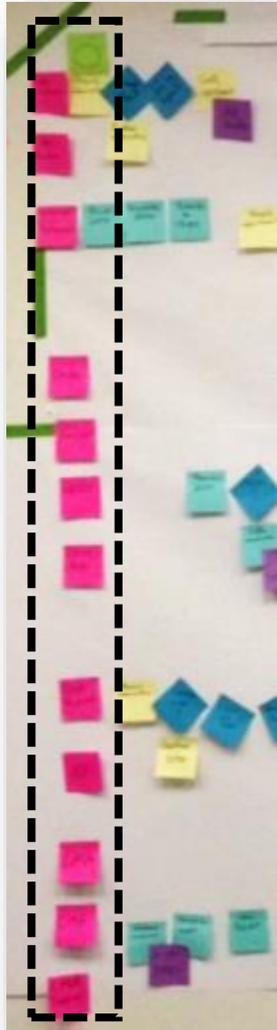
## Red Flags:

- Multiple Entry Points
- Several Decisions in a Row
- Multiple Databases
- High Level Staff Performing Administrative Work
- Everything going to a certain section (i.e. Legal, Director, IT)
- Multiple Reviews, Inspections, Approvals
- Loop Backs Between Sections, Employees, Functional Areas
- Different “ways” of doing some thing



# INTERPRETING PROCESS MAP

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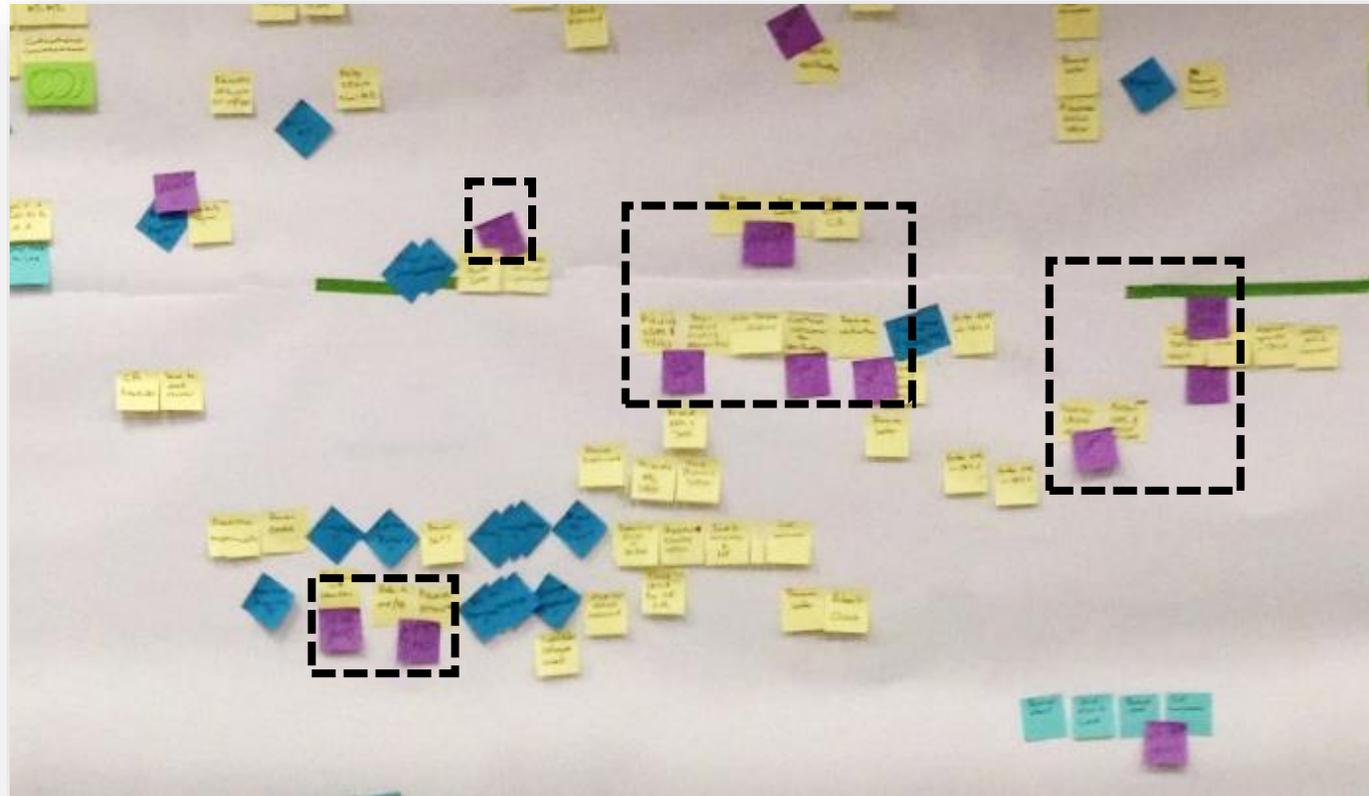
What is going on in this map?

Too many functions

# INTERPRETING PROCESS MAP

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What is going on in this map?

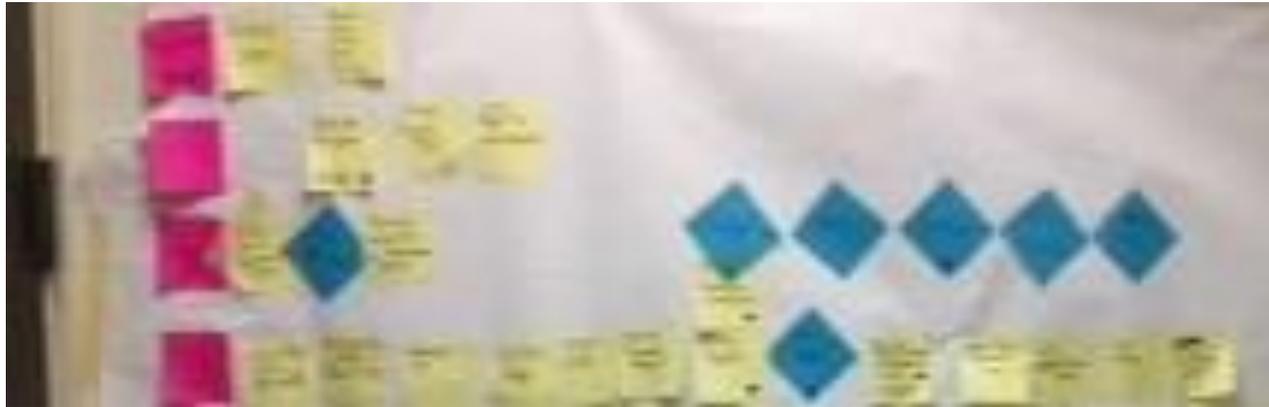


Too many delay points

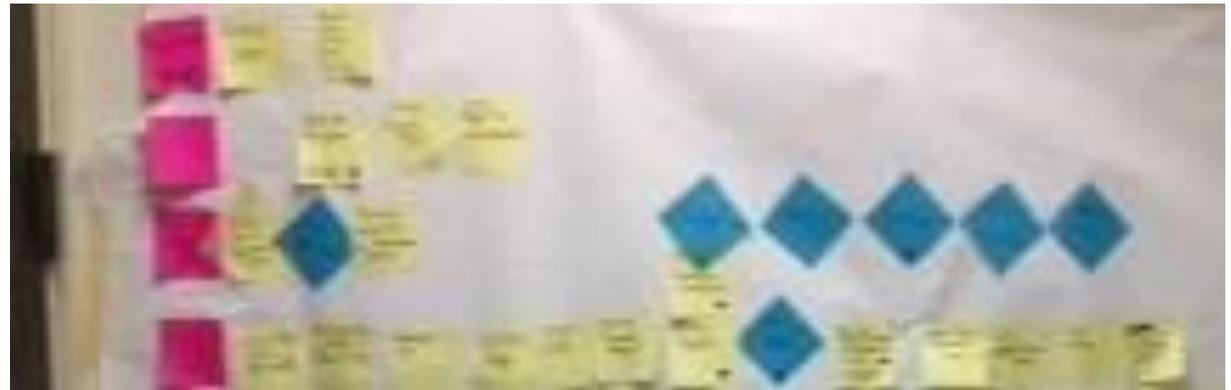
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# INTERPRETING PROCESS MAP

\*



What is going on in this map?



Too many decisions in a row

# ROOT CAUSE ANALYSIS

**Symptom:**

**You see it; people talk about it.**

**Root cause:**

**Often hidden...**

**you need to find it**

**Defining the “wrong” problem wastes time. You end up looking for a solution in the wrong place.**



# ROOT CAUSE ANALYSIS

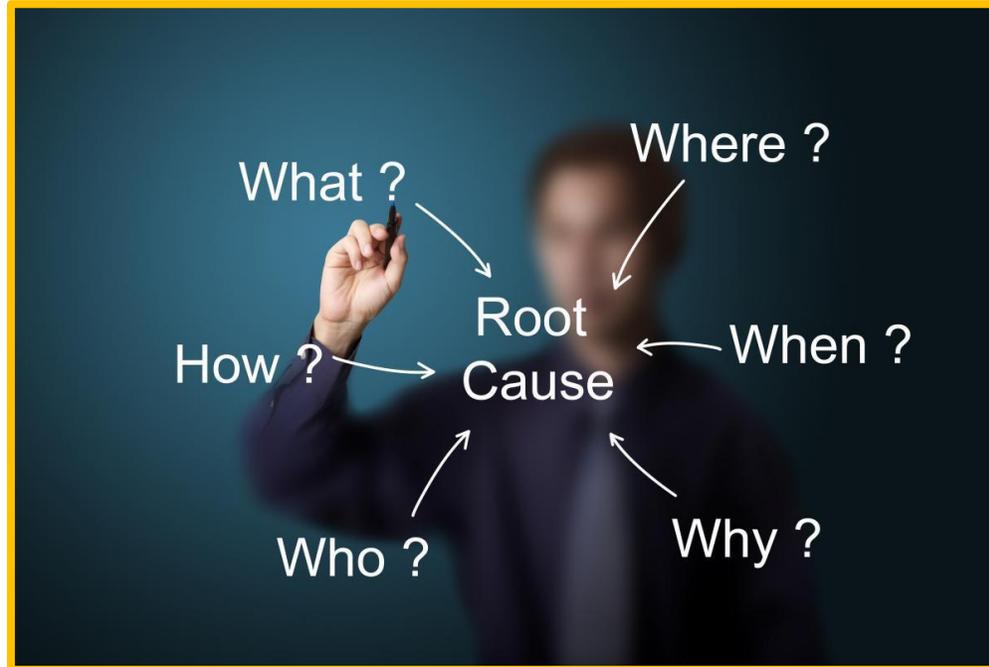
## Root Cause

Separates the symptoms from the true cause of the issue or problem.

## Root Cause Analysis Tools:

- 5 Whys
- Fishbone Diagram
- Pareto Chart
- FMEA

*“It takes too long to get a permit. Therefore, everybody needs to work faster.”*



# ROOT CAUSE ANALYSIS: 5 WHY'S

why?  
why?  
why?  
why?  
why?

*Peel back the layers to discover the “root cause” of the problem.*



**Why is the Jefferson Memorial disintegrating?**



**We use harsh chemicals and lots of water to clean it...**



**Why do we use harsh chemicals and so much water?**



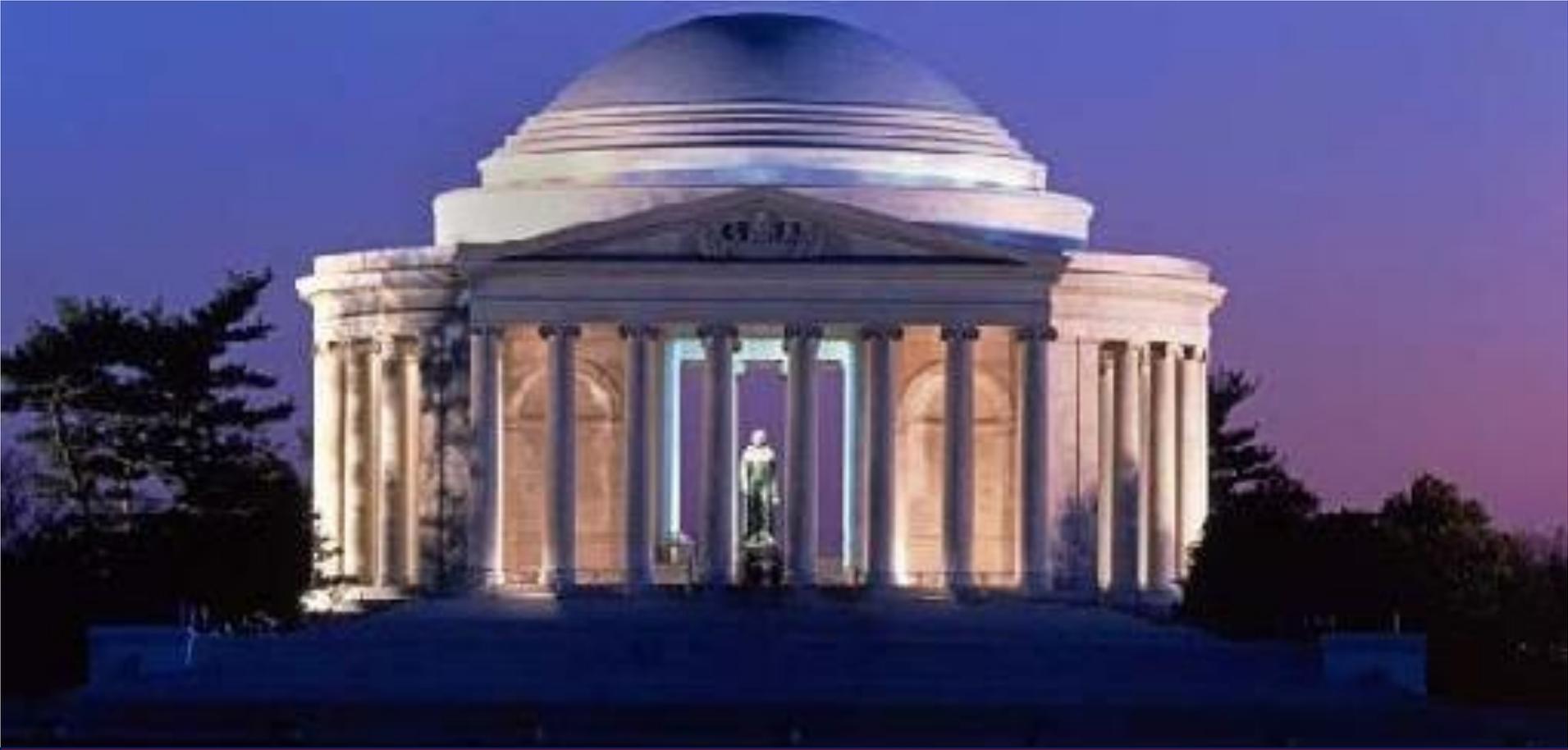
**We have to clean bird droppings every week...**



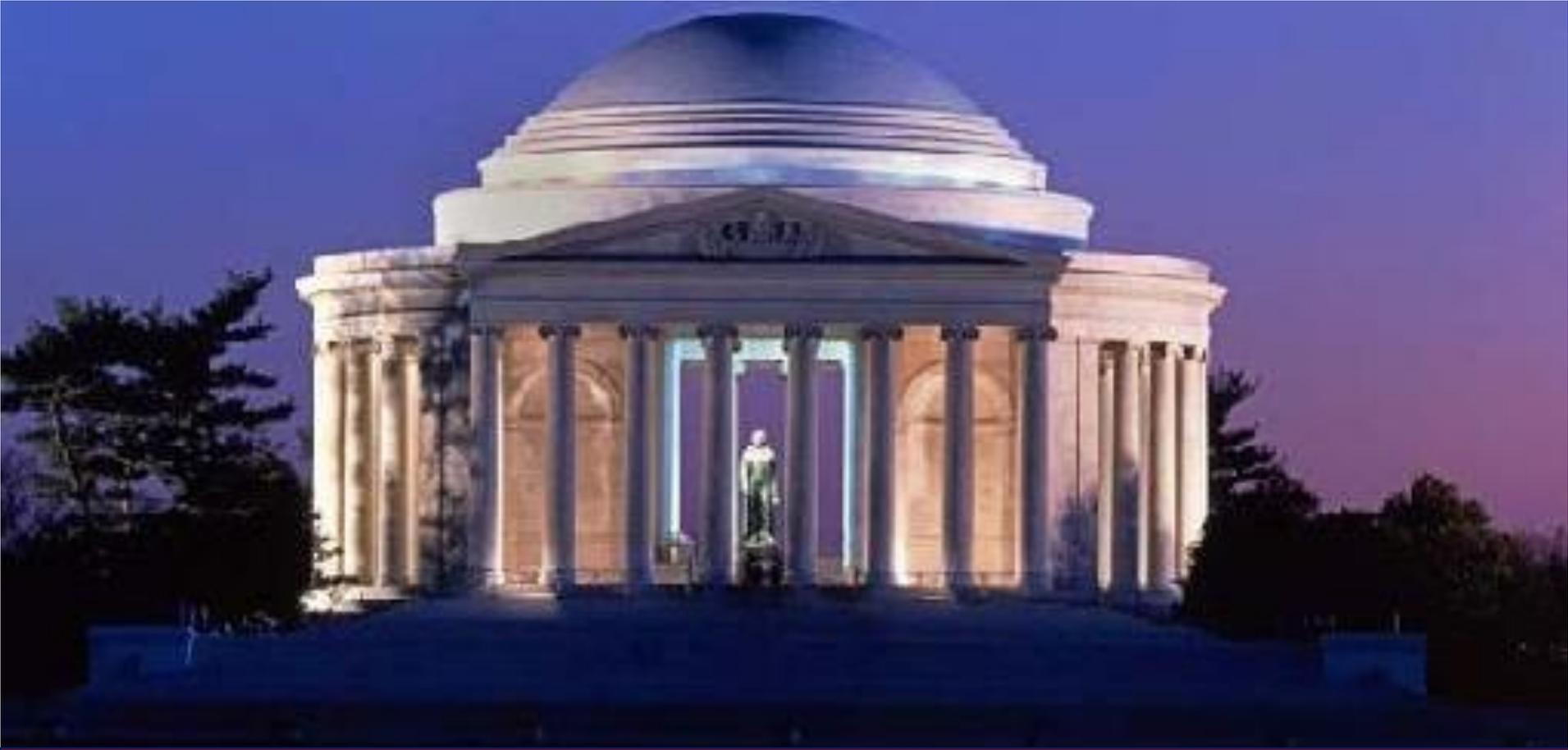
**Why do the birds make such a mess?**



**They go there to eat spiders... there are lots of spiders!**



**Why are there so many spiders there?**



**The spiders eat the midges that emerge at dusk**



**Why do the midges pick the memorial?**



**They are attracted to the light at dusk**

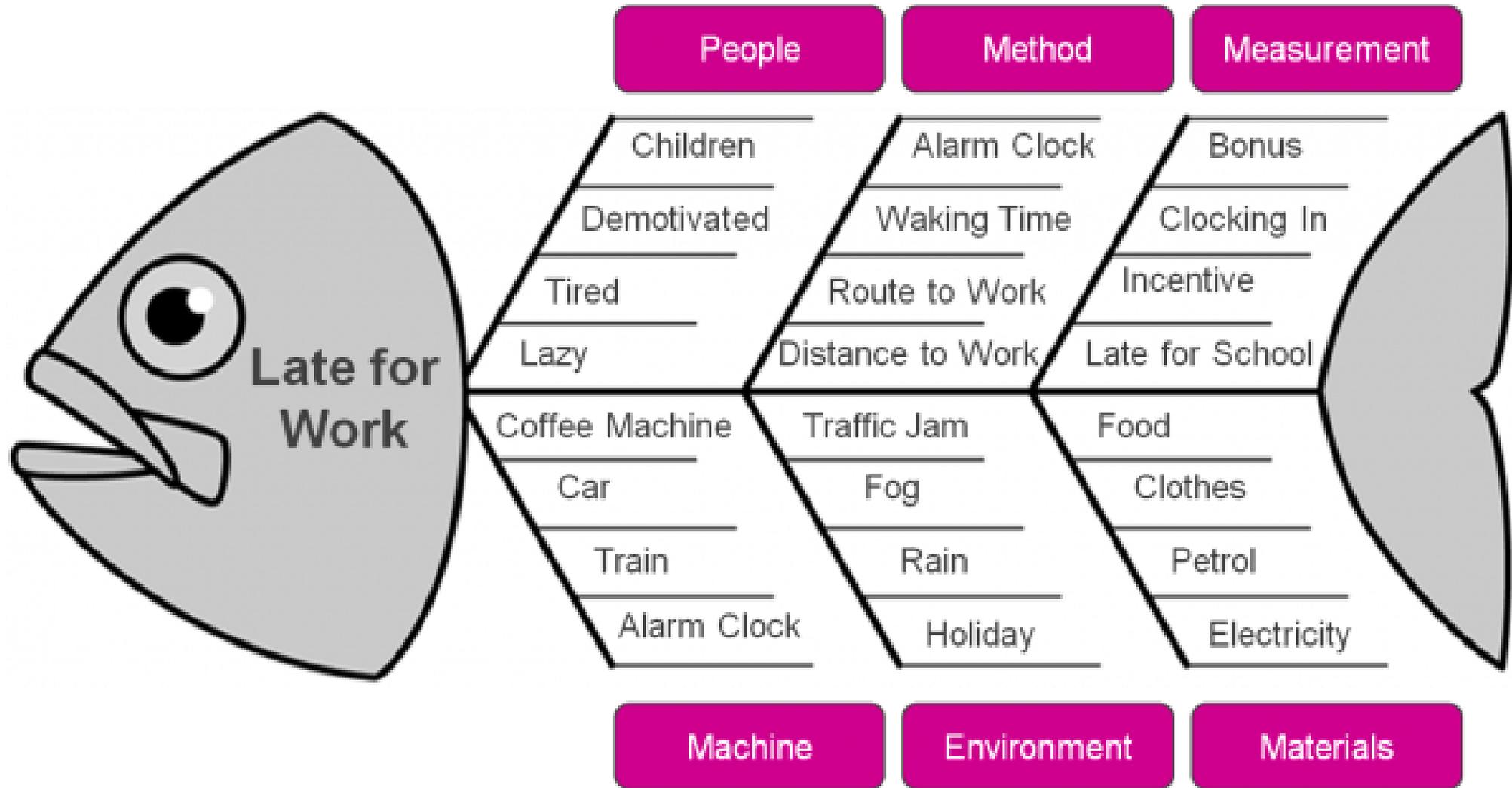


**Solution: Delay the lights for one hour after sunset**



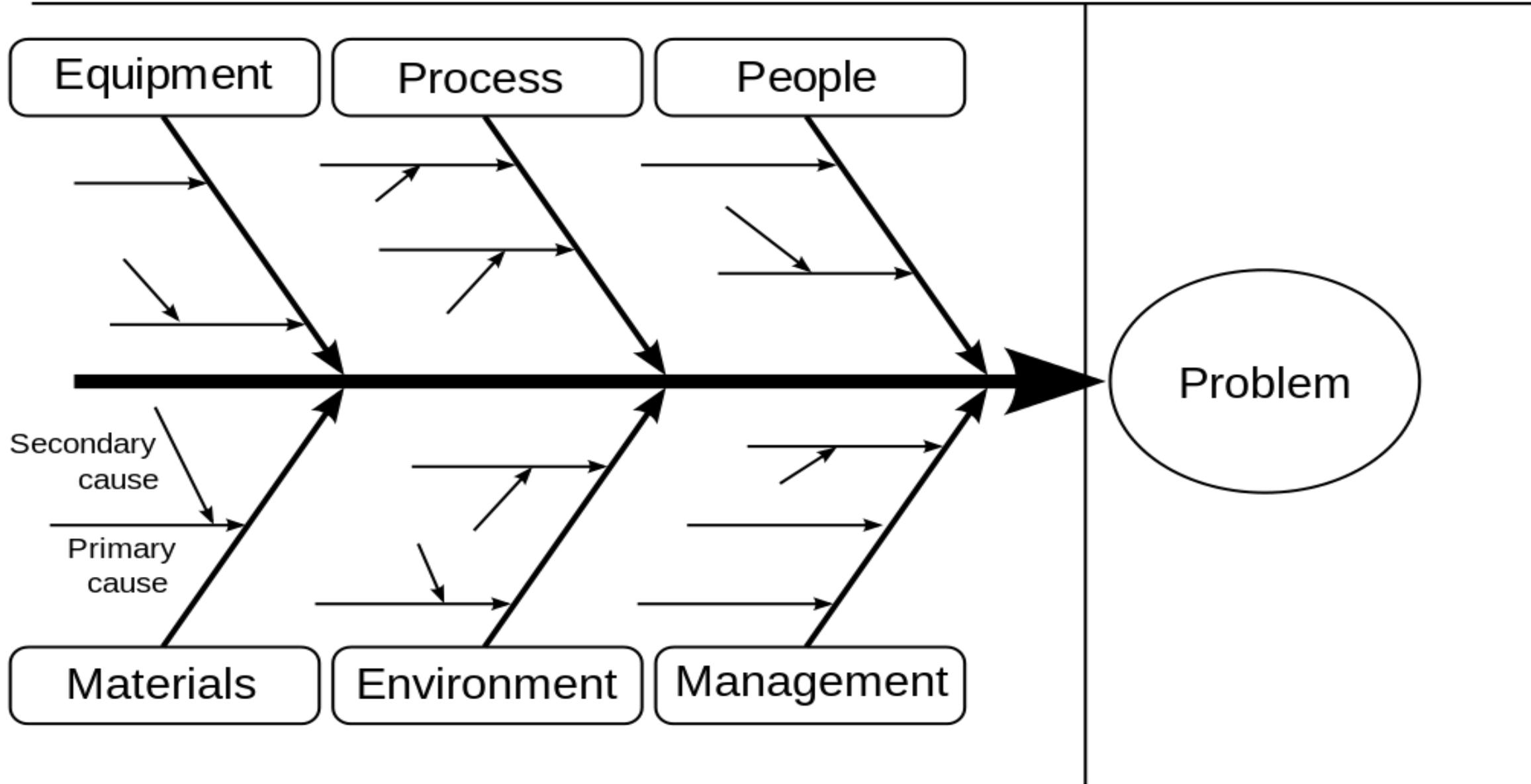
**Result...The midges don't go to the memorial –  
The spiders and bird food supply ends –  
Reduced cleaning needed!**

# FISHBONE DIAGRAM



Cause

Effect





# Making Informed Decisions: Metrics and Data

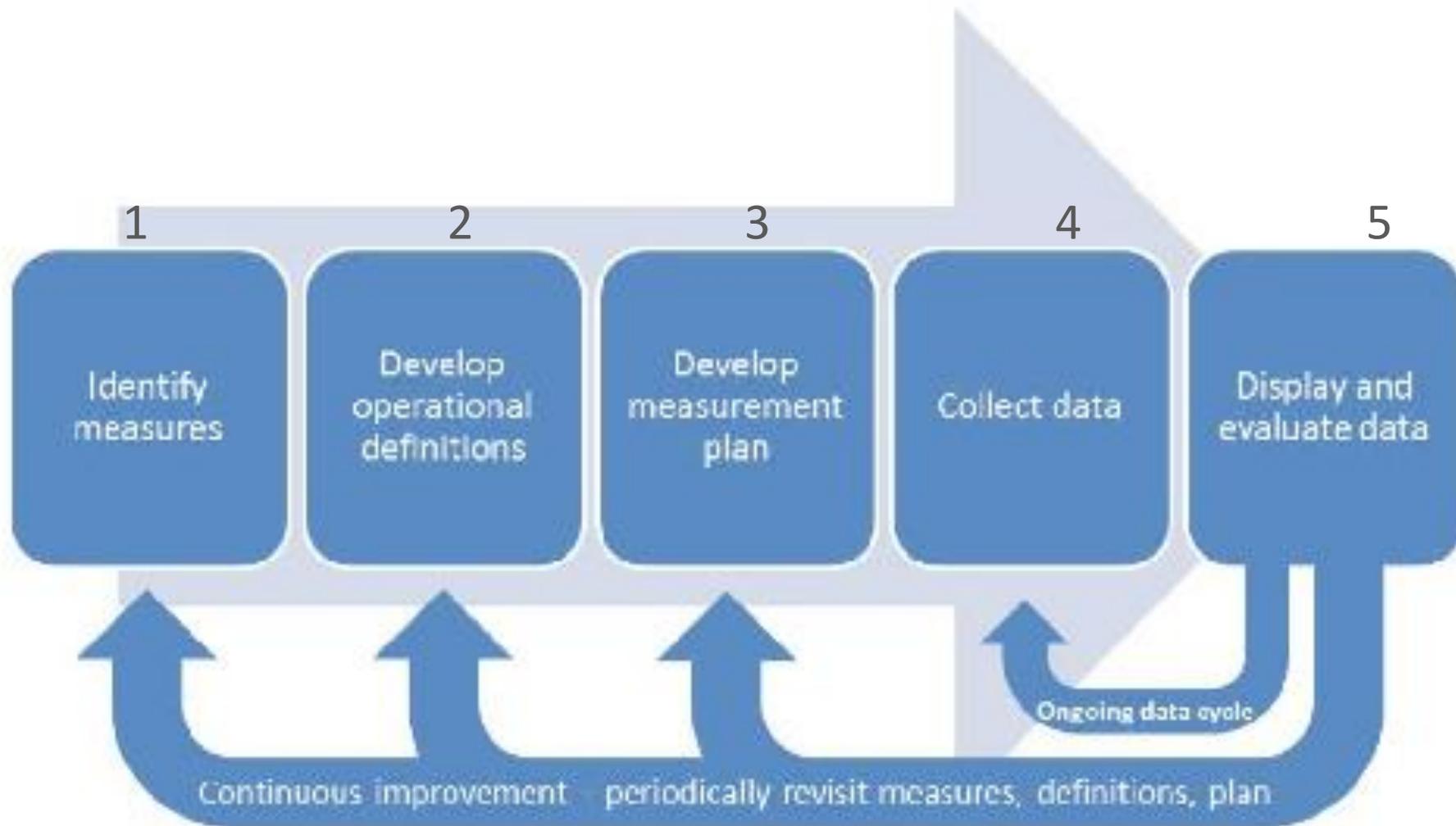
**VIDEO:**

Wildebeest:  
Shall We  
Cross the  
River?

# MAKING INFORMED DECISIONS

1. What data do you need to help you understand the problem or to establish a baseline?
2. What measures will tell you if your improvement is successful?
3. How can you clearly define the measurement of that data?
4. What will you do with that data?

# DATA COLLECTION



# WHERE DO WE GET THE DATA?

- Voice of the Customer
  - Satisfaction, complaints, importance, requirements, lead time
- Voice of the Process
  - Cycle time, lead time, errors, rework, backlog, steps, handoffs, loopbacks
- Voice of the Business
  - Costs, overtime, safety, benchmarks
- Voice of the Employee
  - Satisfaction, suggestions, safety, turnover

# LEAN GOVERNMENT MEASURES

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1. Simpler
2. Faster
3. Better
4. Less Costly

**VIDEO:**  
Bush's Baked  
Beans

**PLAY TIME:**  
30 sec



# OPERATIONAL DEFINITIONS

- An operational definition, when applied to data collection, is a clear, concise detailed definition of a measure
- The need for operational definitions is fundamental when collecting all types of data
- Precisely defines the characteristic and how data collectors measure the characteristic to be sure they have the right one
  - Should be written anytime data is being collected
  - Without them data will usually be inconsistent or wrong
  - It is easy to assume everyone understands
  - Should be documented, standardized, accessible and tested routinely

# OPERATIONAL DEFINITIONS:

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- **Overtime**
- *Be home by dark*
- **Late**
- **Weight**
- **Backlog**

# OPERATIONAL DEFINITIONS

## **Good:**

Response Time = minutes elapsed from application email date/time to decision email date/time

## **Better:**

The response time in minutes will be determined by the date and time of the fax received (as shown on the emailed application), to the time the approval or rejection letter is faxed to the applicant (as shown on the email log)

# OPERATIONAL DEFINITIONS

**Define a “Sweet”**

# OPERATIONAL DEFINITIONS

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# OPERATIONAL DEFINITIONS

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**Stevia**

# OPERATIONAL DEFINITIONS

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# OPERATIONAL DEFINITIONS

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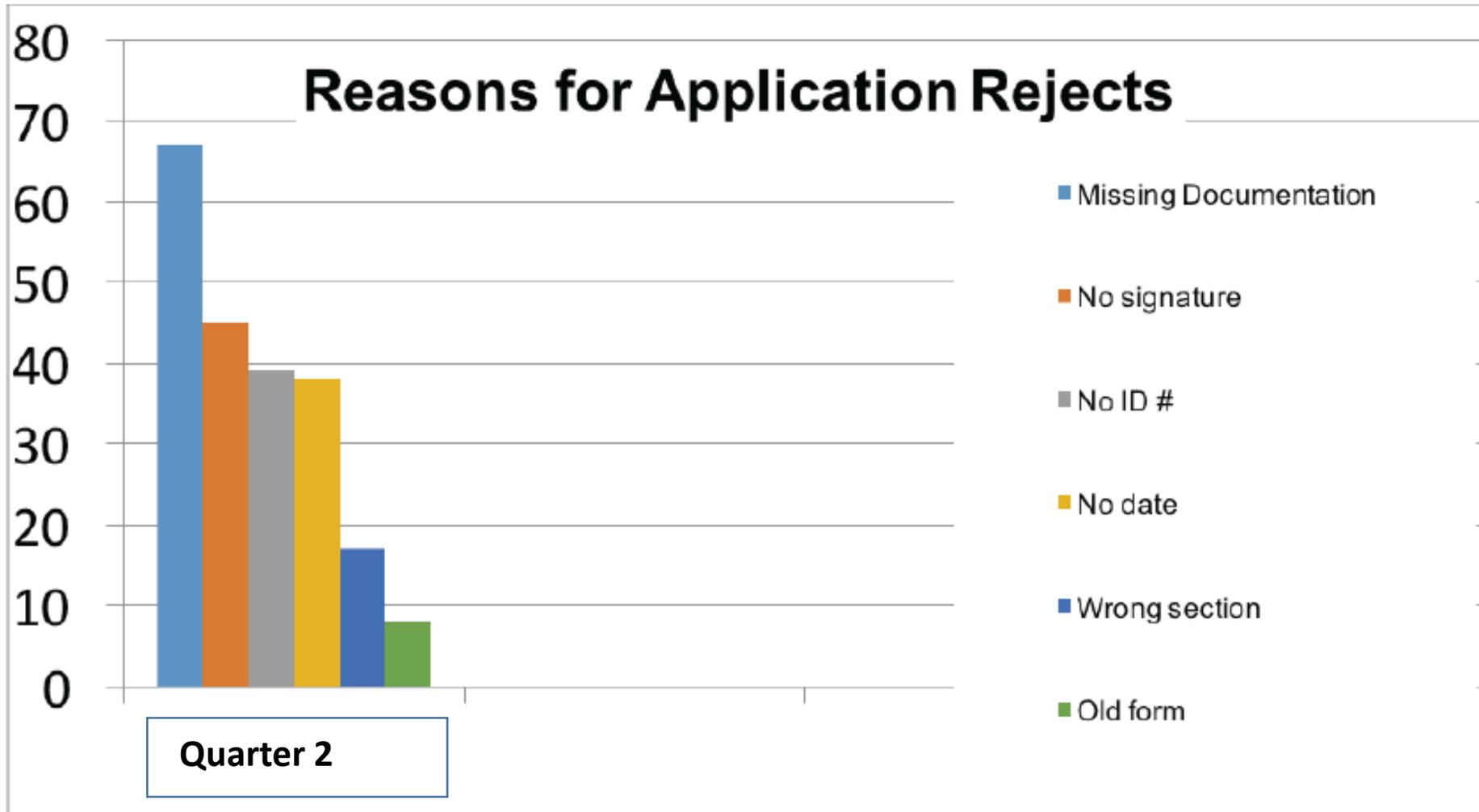
# DATA COLLECTION PLAN

Measure	Operational Definition	Data source and location	Sample Size	Who will collect data	When collected	How collected	Other data to collect at same time
Time to process application	Email date, time Decision email date, time	Applications for XYZ	289	Joe Smith Tim Mann	During the first 2 weeks of the month	Random selection. Use simple spread sheet	Day of week, First time accurate submission
Application rejects	Any reason application is rejected	Applications for XYZ	289	Joe Smith Tim Mann	During the first 2 weeks of the month	Random selection. Use simple check sheet	Email date, time Decision email date, time
<b>How will the data be used?</b>				<b>How will the data be displayed?</b>			
Identify average, shortest & longest lead time Identify number per submitting organization Look for trends. Day of week, time of submission. Identify issues for rejects Identify # accurate & complete first time submissions				Pareto chart Run chart			

# COLLECT DATA

Application Rejects						
Reason	Day 1	Day 2	Day 3	Day 4	Day 5	Total
No date	### ###	### ### III	###	### I	IIII	38
No Signature	### ### ###	### ### II	###	IIII	### IIII	45
Missing Documentation	### ### ### III	### ### ### IIII	### II	### ### I	### ### II	67
No ID#	###	###	###	### ### III	### ### I	39
Wrong Section Completed	III	###	IIII	II	III	17
Old Application Form	II	III	I	I	I	8
						<b>175</b>

# DISPLAY DATA



# WHAT METRICS SHOULD YOU USE?

*What will tell you if your process is improved?*

- Time it takes to do something (Lead time, Process time)
- Errors or defects and rework
- Customer satisfaction
- Backlog of work
- Number of process steps, handoffs, loopbacks, decision points, delays, dedicated staff hours
- Cost savings – to the agency or to the customer

*Identify primary and secondary measures to avoid **sub-optimization***

[http://lean.ohio.gov/Portals/0/docs/tools/LeanOhio\\_MetricsGuide\\_ver1.pdf](http://lean.ohio.gov/Portals/0/docs/tools/LeanOhio_MetricsGuide_ver1.pdf)

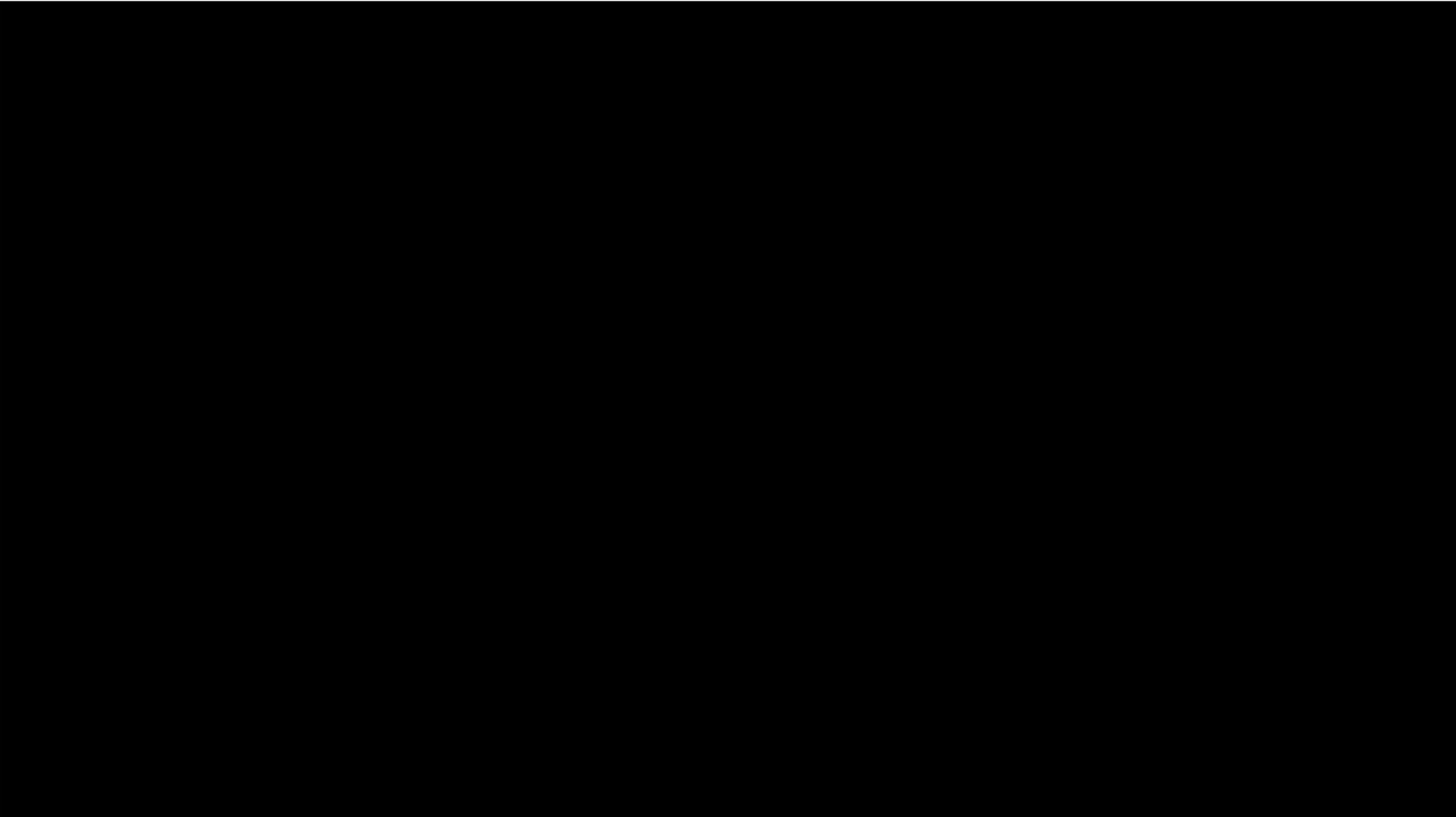
# WHAT METRICS FOR YOUR PROJECT?

Performance Measure	Operational Definition	Data Source and Location	Sample Size	Who will collect the Data?	When will data be collected?	How will data be collected?	Other data that should be collected at same time
<b>How will data be used?</b>				<b>How will the data be displayed?</b>			



# 5S + Safety

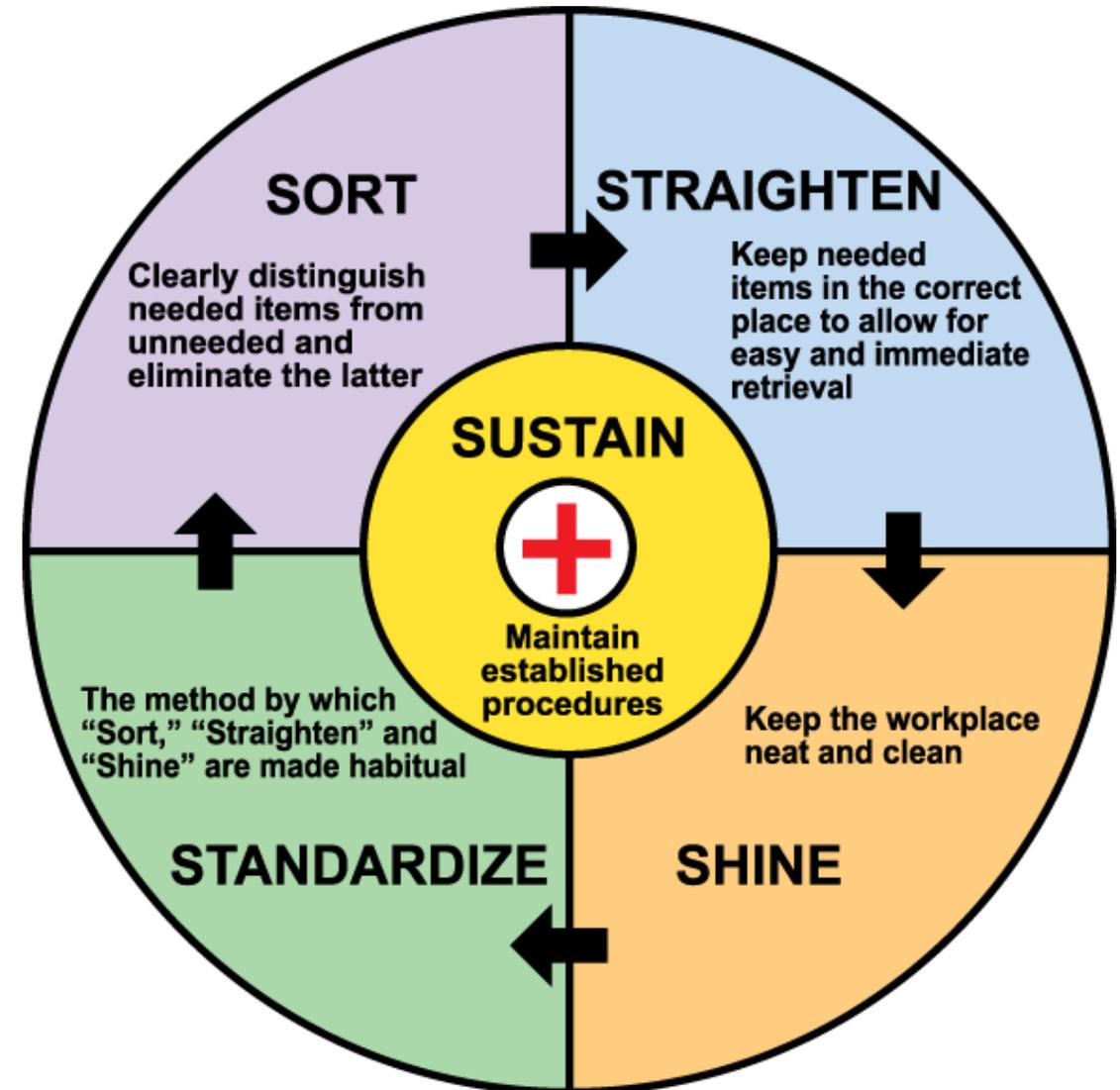
**VIDEO:**  
State of  
Ohio  
5S



# 5S

Designed to help build a quality work environment, both physically and mentally.

- **Sort**—Eliminate what is not needed
- **Straighten**—Organize whatever remains
- **Shine**—Clean the work area
- **Standardize**—Schedule regular cleaning and maintenance
- **Sustain**—Make 5S a way of life



# 5S



Sort

When in doubt, move it out – Red Tag technique



Set in Order

A place for everything and everything in its place



Shine

Clean and inspect or Inspect through cleaning



Standardize

Make up the rules, follow and enforce them



Sustain

Part of daily work and it becomes a habit

# Why 5S?

- Survey of over 1000 workers (Adecco)
  - Typical employee spends 2.5 hours a day searching for information
  - 80% of what goes into a filing cabinet is never referenced again
  - a majority of Americans (57%) admit they judge coworkers by how clean or dirty they keep their workspaces

# 5S - Sort

**Eliminate whatever is not needed.**

- Sort essential from non-essential items
- Non-Essential “STUFF” includes:
  - Not needed now
  - Not needed here
  - Not needed ever again
  - Not needed in the first place
  - Not needed any more



# 5S Strategy

**Keep**



**Toss**



**Move**



# Red Tag

- Items that need to be removed but cannot be removed right away should be red tagged
- Fill out the red tag information and affix it to the item that needs to be removed

<b>Red Tag No.</b>	
<b>Date</b>	<b>Person</b>
<b>Item Description</b>	
<b>Quantity</b>	
<b>Disposition</b> <input type="checkbox"/> Move <input type="checkbox"/> Scrap <input type="checkbox"/> Return <input type="checkbox"/> Store Offsite <input type="checkbox"/> Other _____	
<b>Comments</b>	

# 5S – Set In Order (Straighten)

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**Straighten:**  
Organize whatever  
remains

*A place for  
everything and  
everything in its  
place.*



# 5S – Set In Order (Straighten)

**Straighten** – What must be kept; make visible and self explanatory so everyone knows where it goes

- Find “BEST LOCATION”
- Organize based on what you use the most
- Store files & tools together if used together
- Make them easy to remove/put back

***Create an atmosphere where abnormalities are easy to identify***

# 5S – Set In Order (Straighten)



# 5S – Set In Order (Straighten)



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## 5S - Shine

### Shine: Clean the work area

Did you know?

Phone, Water fountain handle, Microwave door handle and Keyboard are the top five most germ-contaminated spots in the office. And, on average, the area where you rest your hand on the desk has 10,000,000 bacteria



## 5S - Shine

### Shine: Clean the work area

Clean and organize daily

By ensuring everything is clean, it is easier to detect when and where there is a problem

Less likely to be distracted (or get ill!)



# 5S - Standardize

**Standardize: Define the best way and do it consistently**

- **Create rules and standardize processes**
- **Make it a habit**
- **Transform the culture**
- **Revisit frequently**
- **Create audits/checklists**



# 5S - Sustain

**Sustain:** Make 5S a way of life



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# 5S - Ways to Sustain

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- Define how to maintain the best way
- Develop good work habits for the long term
- Monthly area review
- Reminders in staff meetings
- Reward areas
- Recognize improvement
- Annual clean up day

# 5S - Safety

- Resolve unsafe conditions
- Beware of...
  - Tripping hazards
  - Slip hazards
  - Pinch points
  - Unstable stacks or structures
  - Motorized equipment
  - Toxic materials
  - Loose Clothing
  - ...and many others



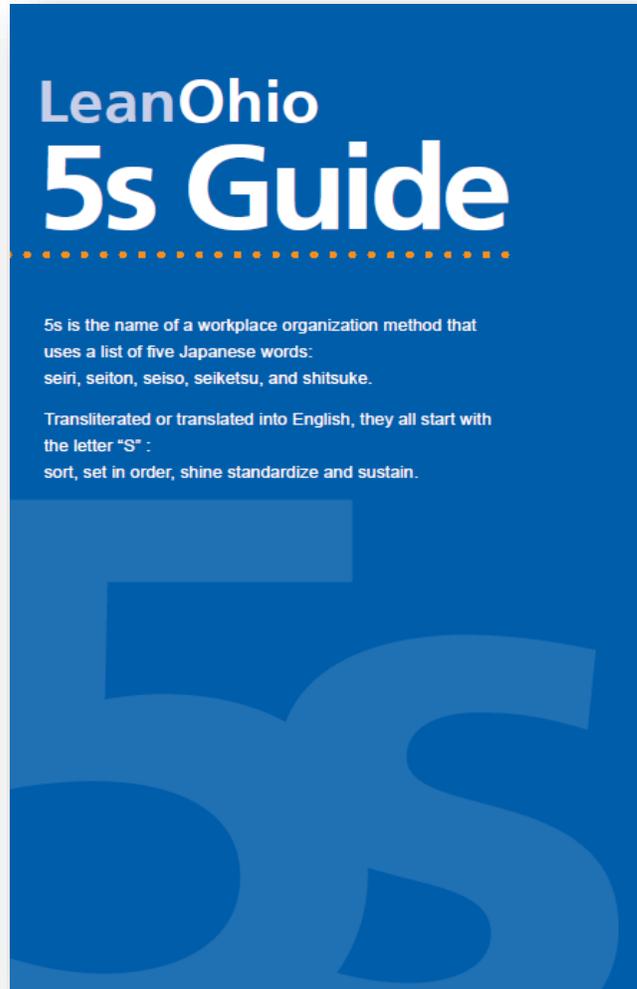
# 5S



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# 5S Resource



## **SORT**

“When in doubt, throw it out”



## **SET IN ORDER**

“A place for everything, with everything in its place”



## **SHINE**

“Make it clean and keep it clean”



## **STANDARDIZE**

“If you can't see, you don't know, and if you don't know, you can't control”



## **SUSTAIN**

“Maintain the gain”



# Improvement Teams And Team Dynamics

# TEAM

- A group of people working together towards a common purpose



# TEAM WORK

Obstacles?

Things that help?



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# IMPROVEMENT TEAM MEMBERS

- Who
  - Core Team Members: People who do the work or supervise the work
  - Team Leader
  - Process owner
  - SME's
  - Fresh Perspective
  - Perhaps Customers
- Ideal team size 5-8 core members

# OBTAINING TEAM MEMBERS

- Define roles or functions needed on team
- Follow Chain of Command
- Define Expected Time Commitment
- Functional Areas and Expertise Needed
- Customer Representation



# STRUCTURE FOR SUCCESS

- Clear and Common Goals
- Defined Roles
- Clear Agreed Upon Procedures
- Understanding Interpersonal Dynamics



# TEAM LEADER ROLE

- Manages the project and the team
- Primary contact point
- Keeps the team and project records
- Solicits help from the project sponsor to overcome project barriers
- Assists with team conflict resolution



# TEAM SPONSOR/CHAMPION ROLE

- Someone in leadership who has the ultimate authority to implement changes
- Signs off on Team Charter
- Helps remove barriers
- Helps provide resources (time, SME's, etc.)
- Needs to be kept in the communication loop



# PROCESS OWNER ROLE

- Process owner is the team member who is responsible for seeing that the project gets implemented



# FACILITATOR ROLE

- “Outsider” – neutral person
- Provides process and tools expertise
- Focuses on process NOT content
- Engages and Guides the team



# DO YOU NEED A FACILITATOR?

- Do you have a large project? Does it cross multiple sections or units or departments?
- Do you have a large team?
- Is the topic potentially controversial?
- Is this your first improvement project?
- Do you need group management expertise?
- Do you need process and tools expertise?



# OTHER ROLES

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**Fresh Perspective:** An outside person who is a full team member but knows nothing about the process being improved

**SME:** A “part-time” member of the team called upon for specific expertise

**Customer:** The recipient of the product or service

**Stakeholder:** Those who have an interest in the process

# TEAM PROCEDURES

- Ground Rules
- Meeting Management
  - Agenda
  - Distribute pre-work before meeting
  - Start and end on time
  - Action registers
  - Clear and simple minutes
- Decision-making methods
- Problem-solving methods
- Communication protocols

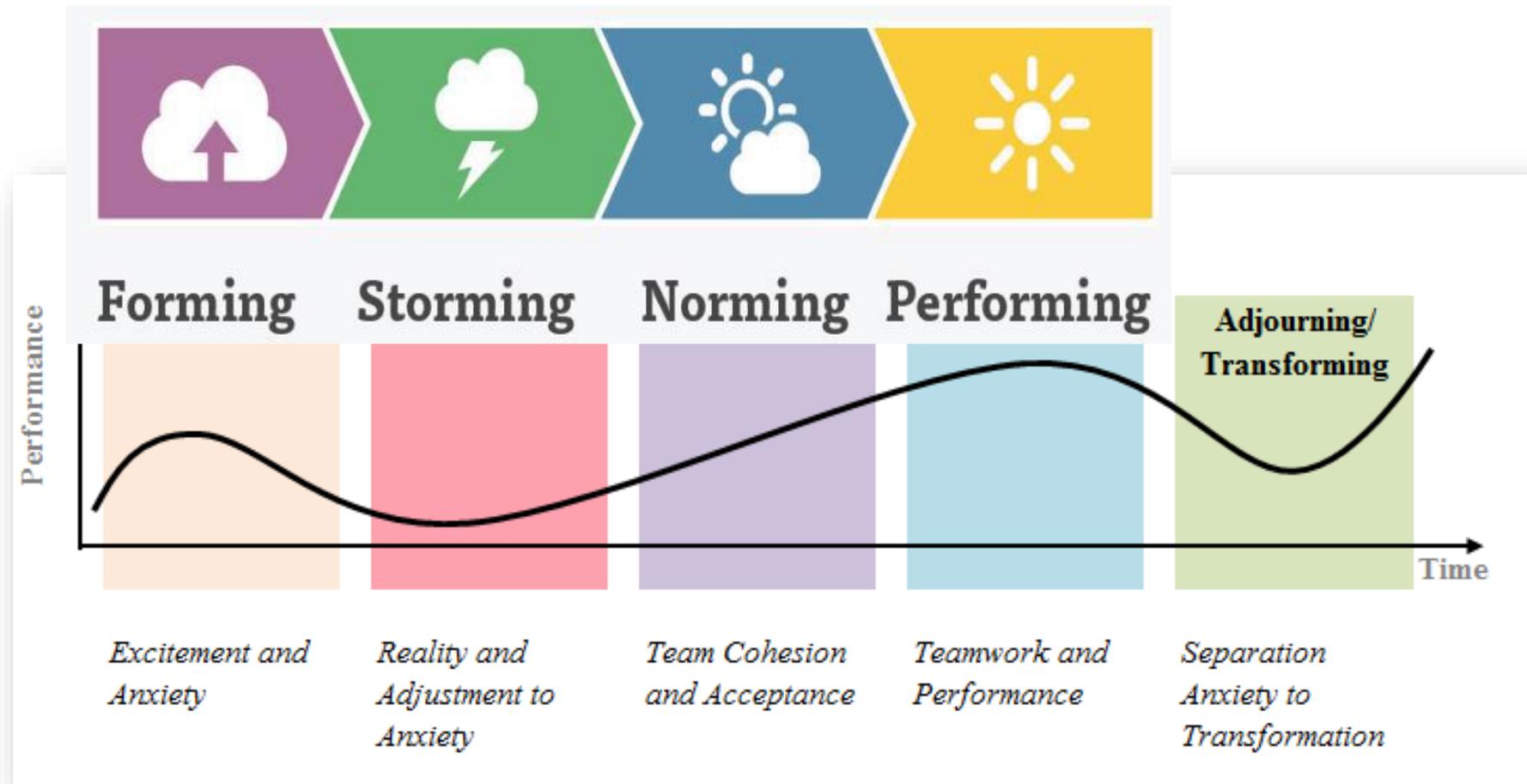


# TEAM DYNAMICS



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# TEAM PERFORMANCE



# SUCCESSFUL TEAM TIPS

- Ground rules
- Clear team goals
- Improvement plan
- Defined roles
- Communication
- Respectful team behavior
- Clear decision-making procedures
- Equal participation



# MEETING MANAGEMENT: AGENDAS

TIME	TOPIC	OUTCOME	WHO AND/OR HOW
10 min	Check-in, review agenda	Ready for work!	Leader
10 min	Review pre-work	Informed	Jim-Bob
20 min	Discussion of XXX	Decision	Sam/Force-field analysis
10 min	Brain storming on YYYYYY	Ideas for solution	Jane
5 min	Next Steps	Assignments	Leader/ Action register
5 min	Evaluate meeting	Improvements	Leader Plus/Delta

# MEETING MANAGEMENT: MINUTES

Team Meeting Minutes		
Meeting/Team Name:		
Date:	Time	
Attendees:		
TOPIC	DISCUSSION	DECISIONS/ ACTION ITEMS

# END OF DAY

- Questions
- What Went Well
- Lessons Learned

