Day 3
Part 1
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DAY THREE

ANALYZE AND IMPROVE
REVIEW ACTIVITY

What You Choose to Remember

• Groups of 3
• What you Chose to Remember from Days #1 & #2
• Everyone Contributes
OVERVIEW

What We Will Cover

- Poka Yoke, Pareto Diagram
- Batching-Single Piece Flow
- Push-Pull
- Standardized Work
- Kanban
- Brainstorming, Affinity Diagram, Impact-Control Matrix
- Clean Sheet Redesign

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Poka Yoke
POKA YOKE

“Mistake Proofing”

ポカ (mistake)

ヨケ (proofing)

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POKA YOKE

Typical Reactions:

“What an idiot!”

“Most people know enough to remove the hose before they drive off - why should we change things for one fool?”

“What can we do to prevent that mistake from ever happening again?”

“There’s just nothing that can be done to help some people”
POKA YOKE

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POKA YOKE
POKA YOKE: RAILROAD CROSSING SAFETY

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POKA YOKE: RAILROAD CROSSING SAFETY

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POKA YOKE: RAILROAD CROSSING SAFETY

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IF YOU HIT THIS SIGN
YOU WILL HIT THAT BRIDGE

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POKA-YOKE (SAFETY)

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POKA YOKE

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How does Poka Yoke apply to government work?
GOVERNMENT FORMS

- Almost every government process involves a form
- During scoping, almost every Kaizen team is frustrated that users of their services can’t complete a simple form (What an idiot!)
- During a Kaizen event almost every team identifies waste in in the area of the process that involves forms

More than 95% of State of Ohio Kaizen Event teams to date have implemented improvements that reduce mistakes, delays and frustration around forms
Use DATA for Mistake-Proofing Forms:

- Determine Percentage of Time Form is Completed Without Errors
- How Many, How Often, and What Kind of Errors are Made
- How Much Time is Spent Reviewing the Form and Correcting Errors
- Break Down Errors by Type or by Question
- Look for root causes
POKA YOKE: CONCENTRATION DIAGRAM

Concentration Diagrams are great ways to collect data for your forms.

Puts data in a visual form for all to see.

Helps prioritize issues and develop ideas to eliminate root causes.
POKA YOKE: CONCENTRATION DIAGRAM

Concentration Diagrams are great ways to collect data.

Puts data in a visual form.
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Question: What grade level is the New York Times written?
Answer: 10th Grade

Question: What grade level are John Grisham’s and Stephen King’s writing?
Answer: 7th Grade

Question: What grade level are most State forms, letters and websites written?
Answer: College Level+
According to the National Adult Literacy Survey:

- The average adult in the U.S. reads at the 7th grade level
- Nearly 50% read below the 6th grade level
- Over 80% read below the 10th grade level
- The largest selling magazines, newspapers and books are written at lower grade levels.
Microsoft Word has reader level features:

1. Tools/Options Menu
2. Go to Spelling and Grammar Page
3. Check “Show Readability Statistics.”
UNDERSTANDING READABILITY SCORES

• Looks at # syllables and # words per sentence.

• Flesch Reading Ease Test: the higher the score, the easier it is to understand. You want the score to be between 60 and 70.

• Flesch-Kincaid Grade Level Test: rates text on a U.S. school grade level. For most documents, aim for a score of approximately 7.0 to 8.0.

Bulleted Lists are GREAT!
FY2010:
2,700 appeals with a cost to the taxpayer of $520 per decision

October 2013:
1,200 appeals with a cost to the taxpayer of $118 per decision
POTENTIAL FORM IMPROVEMENT IDEAS

• Remove unnecessary questions
• Explain questions that may seem unnecessary
• Eliminate unnecessary typing with pull down menus if online, or boxes to check if a paper form
• With pull down menu, ensure most common answers are first
• Highlight required fields
• Consider Reading Level of Users
**Slow Form for Renewal Requests**

<table>
<thead>
<tr>
<th>Date Submitted to DOP:</th>
<th>Agency Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department Code:</td>
<td>Agency Reference #</td>
</tr>
<tr>
<td>OAKS ID:</td>
<td>Fund:</td>
</tr>
<tr>
<td>Account:</td>
<td>ALI:</td>
</tr>
<tr>
<td>Program:</td>
<td>Shipping Code:</td>
</tr>
<tr>
<td>Send to:</td>
<td></td>
</tr>
<tr>
<td>Bill to:</td>
<td></td>
</tr>
<tr>
<td>Approval Date Requested:</td>
<td>Fax Number:</td>
</tr>
<tr>
<td>Phone Number:</td>
<td></td>
</tr>
<tr>
<td>Name of Contact person:</td>
<td></td>
</tr>
<tr>
<td>Email:</td>
<td></td>
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</tbody>
</table>

**Additional Information**

<table>
<thead>
<tr>
<th>Date of Request</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvement Initiative Title</td>
</tr>
<tr>
<td>Nature of Request</td>
</tr>
<tr>
<td>Number of times renewed</td>
</tr>
<tr>
<td>Audit Plan</td>
</tr>
<tr>
<td>Budget Plan</td>
</tr>
<tr>
<td>Total Cost</td>
</tr>
<tr>
<td>Form Type</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supervisor Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
</tr>
<tr>
<td>Date</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Director Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
</tr>
<tr>
<td>Date</td>
</tr>
</tbody>
</table>
EXERCISE: REVIEW THE FORM

1. Prioritize most common errors from concentration diagram
2. Consider the root causes of the errors
3. Develop Poka-Yoke ideas to prevent future errors
4. On a flip chart page, draft a new form that incorporates those ideas
FORM DEFECTS BY TYPE
LEAN Ohio
BOOT CAMP
Day 3
Part 2
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Batching vs. Continuous Flow
BATCHING

A Volume Produced at One Time

Developed by Henry Ford. Making a lot of one item at a time.

Processing of subsequent workstations must wait until current batch is finished.

• Reasons given for batching:
  • Manage Change-Over Time for Machines
  • Equipment limitations
  • Keep Cost Low

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Continuous Flow

• Moving one work unit at a time through each step of the desired process
• Reduces Wastes
  • Inventory – less work in process (WIP)
  • Waiting – shorter cycle times
  • Motion – extra handling of documents
  • Defects – easier to spot/correct errors
  • Over Production – out of date documents
BATCHING

One Piece Flow - Order Entry – After

Open One Envelope

Enter One Order

File Order

Acknowledge One Order

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VIDEO:
One Piece Flow is Simple

Time:
4:42

https://www.youtube.com/watch?v=rJCFKIzzIAY
STOP “BATCHING” WHEN PRACTICAL

- Work is streamed into the process
- It flows through uninterrupted
- Few handoffs, delays and approvals
- Faster and less waste
- Taxpayer gets what they want, when they want it
FLOWS: FIFO (FIRST-IN-FIRST-OUT)

- Take one and make one
- “Level” the process to meet people
- First in – First out
- Slow down at any spot, causes problems
- Keep the “flow” moving
Push - Pull
PUSH SYSTEM

Push: Pushing lots of material through at a time.

• Too much inventory on hand (WIP)
• You have to push
• Work not based on customer demand

How is the “Push” system present in your workplace?

- Prevents Having to Store Material/Inventory Reduction
- What the Customer Wants When they Ask for It
- Triggers a Series of Events
PUSH VS. PULL

Department of Taxation

Tax Forms

Instructions: Enter a full or partial form number or description into the 'Title or Number' box, optionally select a tax year and type from the drop-downs, and then click the 'Search' button.

Form Title or Number:
Tax Type: All
Tax Year: All

Search

Top Individuals Forms

File Individual Taxes On-Line

Instructions for IT 1040 and SS 100

IT 10


IT 1041

2016 Ohio Income Tax Information Notice

Top Business Forms

File Business Taxes On-Line

Employer Letter

2017 Expirations, New School Districts, Renewals and Rate Changes Effective 1/1/2017

IT 1041

2016 Fiduciary Income Tax Return
STANDARD WORK – Making Big Mac

http://www.youtube.com/watch?v=Xedkk1xvgeo
STANDARD WORK

- Standard work is documented best practice to complete a task
  - Using standard work
  - Reduces variation
  - Improves quality
  - Is a foundational element to sustain Lean

What are some examples of Standard Work in your organization?

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STANDARD WORK

- Define start and end of process
- Determine customer and staff requirements
- Define the series of steps to complete the work and time needed
- Create forms/documents needed
- Set quality control checks
- Train supervisors and staff in new process
- Validate and test the standard work
- Make adjustments/continuously improve over time
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### JOB BREAKDOWN SHEET

<table>
<thead>
<tr>
<th>Major Steps</th>
<th>Key Points:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Safety: Injury avoidance, ergonomics, danger points</td>
</tr>
<tr>
<td></td>
<td>Quality: Defect avoidance, check points, standards</td>
</tr>
<tr>
<td></td>
<td>Technique: Efficient movement, special method</td>
</tr>
<tr>
<td></td>
<td>Cost: Proper use of materials</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reason for Key Points</th>
</tr>
</thead>
</table>

**Step #1**

**Step #2**

**Step #3**

**Step #4**

**Step #5**

**Step #6**

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STANDARD WORK- ACTIVITY

Dinner Time – It’s Pizza Night

• Using the template provided, create a standard work for preparing a frozen Pizza

• Assumptions:
  • You have a frozen pizza and all required tools to prepare it

• Make sure to stay at appropriate level of detail

• Include key points for:
  • Safety
  • Quality
  • Defect Avoidance etc.
Kanban
KANBAN

- Japanese term for “Visual Signal” or “card”
- Used as an indicator of something ready to work on
- Commonly used as an indicator for re-ordering of stock like paper or gloves or materials
- Maintains an orderly and efficient flow

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KANBAN

Two Rules:
1. Make work visible
2. Limit work in progress
KANBAN

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Solution Finding: Brainstorming
BRAINSTORMING

Creativity is key

“The difficulty lies not so much in developing new ideas as in escaping from old ones”

- John Maynard Keynes, revolutionary British economist

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MENTAL BLOCKS TO PROBLEM SOLVING

• Prejudice
• Functional fixation
• Learned helplessness
• Psychological blocks
“So we went to Atari and said, ‘Hey, we've got this amazing thing, even built with some of your parts, and what do you think about funding us? Or we'll give it to you. We just want to do it. Pay our salary, we'll come work for you.’ And they said, ‘No.’

“So then we went to Hewlett-Packard, and they said, ‘Hey, we don't need you. You haven't got through college yet.’”

-Steve Jobs, Founder, Apple Computer Inc.
FUNCTIONAL FIXATION
“Computers in the future may weigh no more than 1.5 tons.”
- Popular Mechanics, 1949

“There is no reason anyone would want a computer in their home.”
- Ken Olson, founder of Digital Equipment Corp, 1977

“If I had thought about it, I wouldn't have done the experiment. The literature was full of examples that said you can't do this.”
- Spencer Silver, 3-M, 1968

“[Television] won't be able to hold on to any market it captures after the first six months. People will soon get tired of staring at a plywood box every night.”
- Darryl Zanuck, 1946

“There will never be a bigger plane built.”
- Boeing, after the first flight of the 247
BRAINSTORMING

• A technique used to quickly generate a large number of ideas about a specific topic or problem
• Generally used in a group setting
• Can help encourage creative thinking and generate enthusiasm
• Avoids “analysis paralysis” by delaying/prohibiting the evaluation of ideas generated.
• Start with a well-defined and clearly stated problem
• A group member assigned to act as recorder and write down all the ideas as they are shared
• The right people
• Ground rules for the session
BRAINSTORMING “RULES”

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BRAINSTORMING METHODS

Generate creative solutions to a problem

- Silent Brainstorming
- Impact Control Matrix
- Affinity Diagram
- Carousel Brainstorming (practiced on Day #2)
- *Fishbone Diagram (covered earlier)

(* Fishbone can be used for generating ideas as well as identifying problems)
SILENT BRAINSTORMING

Step 1: Generate ideas individually. One idea per post-it
CAROUSEL BRAINSTORMING

Question #1

Question #2

Carousel Brainstorming

Question #3

Question #4

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IMPACT CONTROL MATRIX

I

High Impact/Low Control

II

High Impact/High Control

III

Low Impact/Low Control

IV

Low Impact/High Control

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Clean Sheet Redesign
VIDEO:
More than One Right Answer
DOP SIMULATION: CLEAN SHEET REDESIGN

How do we go from here.......

To HERE!
CLEAN SHEET REDESIGN GOAL

• **TRANSFORMATION** OF THE PROCESS!
  • Create a new process that’s significantly better than the old one
  • Reduce process steps, cost, time by 50%
  • Delight the customers of the process
  • Put aside the “as is” model
BEFORE PROCESS REDESIGN

- Complete the Current State
- Gain Consensus on Current State
- ID Waste (TIM U. WOOD) on Current State
- Document Value Added on Current State Map
- Brainstorm New Ideas
- Review Work Structure Principles
- Evaluate and Prioritize the Brainstorm Ideas

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PROCESS REDESIGN PRINCIPLES

• Design processes around value-adding activities
• Work performed where it makes the most sense
• Provide a single point of contact for customers and suppliers
• Ensure a continuous flow of the main sequence
• Reduce waiting, moving and rework time
• Reduce or eliminate batching
• Build quality in up front to reduce inspection and rework
• Reduce checks and reviews
• Push decision-making down to the lowest reasonable level

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PROCESS REDESIGN

- Improvement teams will be divided into smaller groups (2 or 3)
- Each group will design an ideal future state based on all the work you have done so far, using the redesign principles
- Put aside the way things currently are – this may be the hardest part!
- Reach consensus on the new future state
- Once the small groups have designed their future states, we will compare them

NOTE: 3 clean sheets are not always necessary – especially for smaller PDCA projects. One clean sheet (future state) can be enough.

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PROCESS REDESIGN PART 2

- All teams report their clean sheets to the whole group
- Identify Common and Unique elements as the teams report out
- Reach Consensus on the common and unique things the team must have in the new final future state
- Involve Leadership/Sponsor to give a vote of confidence (or right the ship)
END OF DAY 3

• Plus / Delta