Simpler, Faster, Better, Less Costly

Lean.Ohio.gov
Revised January 2022

LEANOhio Boot Camp

TRANSFORMING THE PUBLIC SECTOR

Simpler. Faster. Better. Less Costly.

Participant Name

Training Dates

WELCOME TO LEANOHIO BOOT CAMP!

You are about to embark on a journey that will invite you to look at your work in an entirely new way. You are in for four days of fast-moving, highly interactive learning and fun. You will be able to take the skills and tools that you learn back to your workplace to make things simpler, faster, better and less costly. You may even find ways at home and in the community to use these skills and tools.

This training course has been developed and refined over several years based on our experience in applying the business practices of Lean to the public sector. While governing is different than business, we can adapt business thinking and best practices to our organizations with great benefit.

During this course you will hear about many public sector organizations who have successfully applied Lean thinking and tools to make their organizations better. We continually learn from others about how they are using Lean, and our sincere hope is that you will become learners and practitioners along with us to make Ohio great!

Enjoy your Boot Camp experience and go do great things!

The LeanOhio Team
www.lean.ohio.gov

PARTICIPANT GUIDE TABLE OF CONTENTS

DAY ONE | *Introduction, Overview and Basic Principles*

DAY TWO | *Making the Invisible Visible*

DAY THREE | *Analyze and Improve*

DAY FOUR | *Process Redesign and Implementation*

DAY ONE

INTRODUCTION, OVERVIEW AND BASIC PRINCIPLES

LEAN Ohio Boot Camp

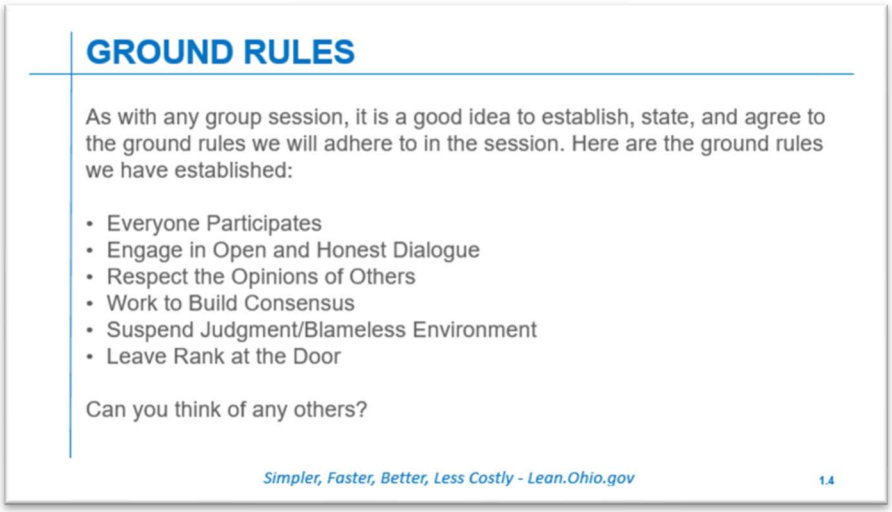
WELCOME

Over the course of 4 days

Welcome to Lean Ohio's Lean Boot Camp. Over the course of 4 days, you will learn about Lean, the History of Lean, Lean Principles, Lean Tools, and how to use them. Through experiential learning activities, you will engage with the topics from both a hypothetical and 'real-world' standpoint.

Introduction (Slide 1.3)

- Name
- Organization
- Role in organization
- Lean and/or Six Sigma Experience



Ground Rules (Slide 1.4)

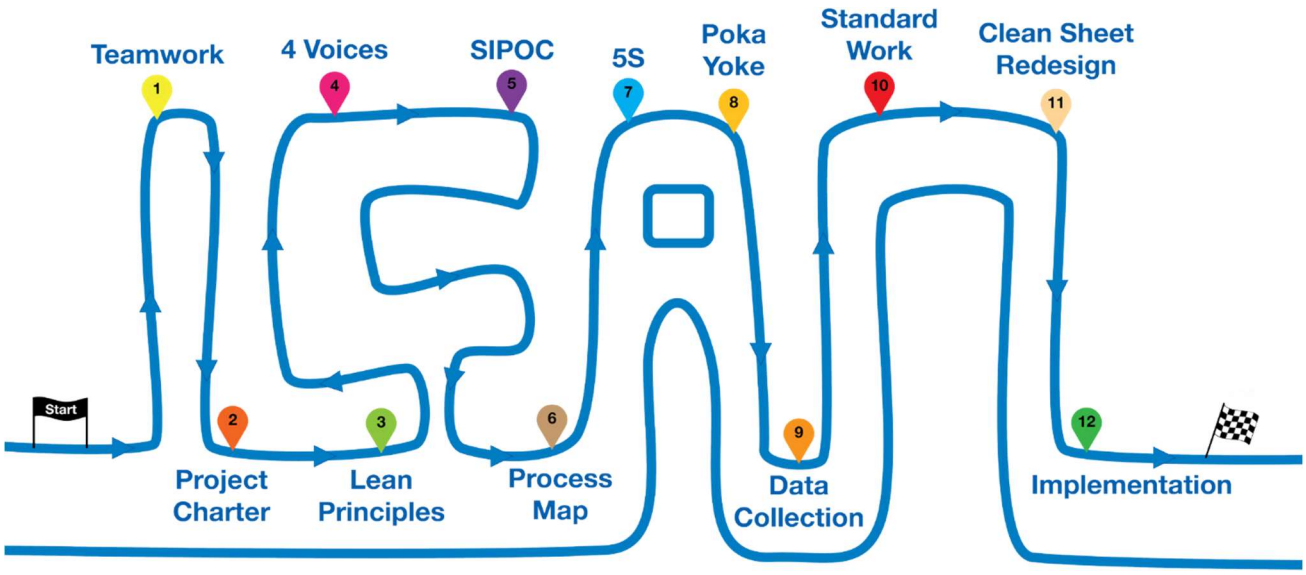
- Everyone Participates
- Engage in Open and Honest Dialogue
- Respect the Opinions of Others
- Work to Build Consensus
- Suspend Judgment/Blameless Environment
- Leave Rank at the Door

Housekeeping Rules (Slide 1.5)

- Silence your cell phones
- Keep interruptions to a minimum
- Be on time
- Stretch

- Always make time for snack time!
- Follow dress code
- Follow schedule for sessions and breaks

Boot Camp Road Map (Slide 1.6)



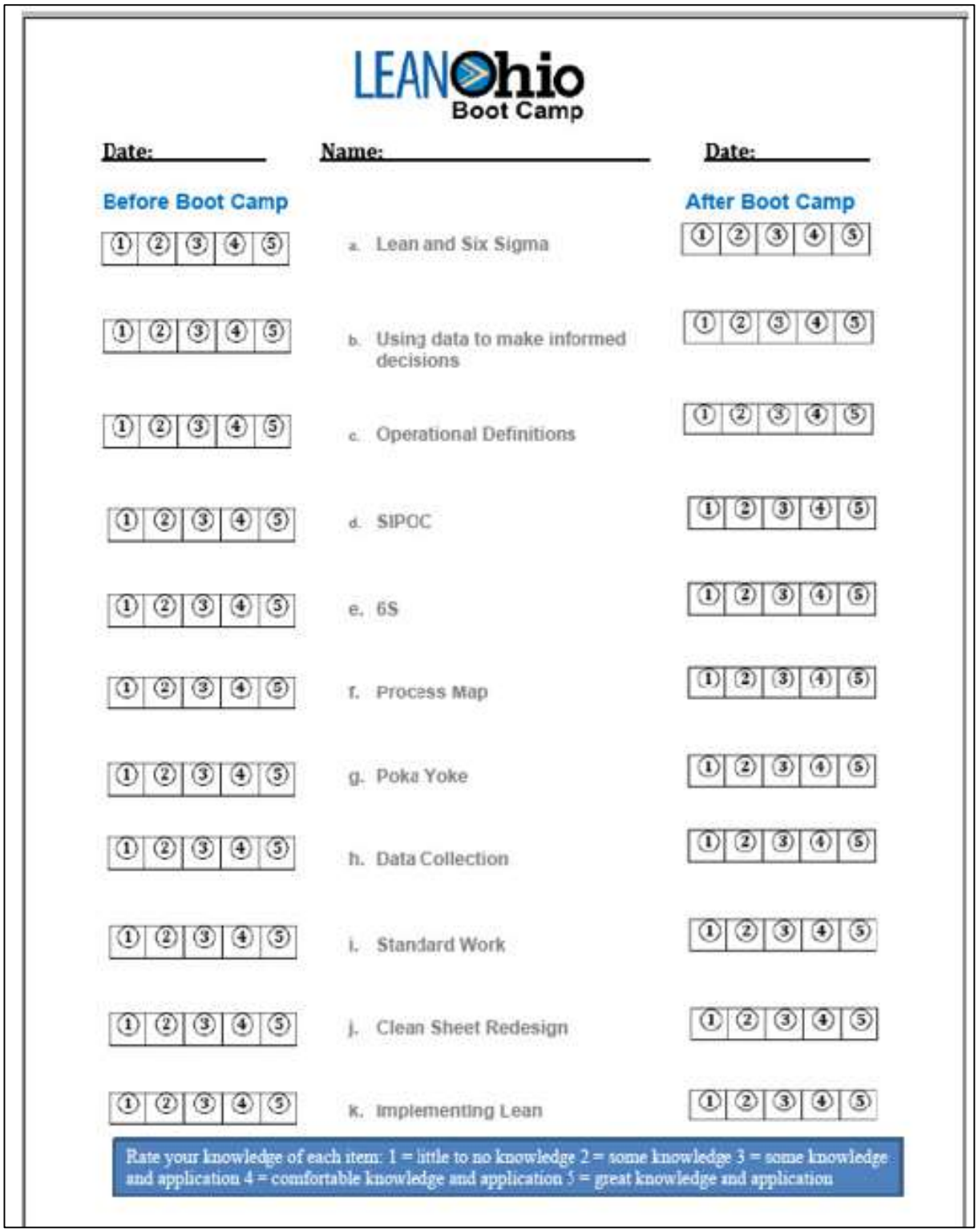
1. Teamwork
2. Project Charter
3. Lean Principles
4. 4 Voices
5. SIPOC
6. Process Map
7. 5S
8. Poka Yoke
9. Data Collection
10. Standard Work
11. Clean Sheet Redesign
12. Implementation

BOOT CAMP: FOUR-DAY OVERVIEW (Slides 1.7-1.11)

DAY ONE Introduction, Overview and Basic Principles	DAY TWO Making the Invisible Visible
• Lean Six Sigma Intro/ Overview • Pre-Assessment • PDCA • Four Voices • SIPOC –Introduction to scoping • Project Selection • Project Charter	• Teams and Team Dynamics • Gemba • Process Mapping • Identifying Waste • Value Add/Non-value Add • Root Cause Analysis • Fishbone (Ishikawa) Diagram • Metrics and Data Collection • 5S

DAY THREE Analyze and Improve	DAY FOUR Process Redesign and Implementation
• Poka-Yoke • Pareto Diagram • Lean Tools: Batching/One Piece Flow, Standard Work, Pull, Kan-Ban • Brainstorming • Affinity Diagram • Clean Sheet Redesign • Developing the Future State	• Implementation Plans and Tools • Making the Future State Happen • Measures of Success • DoP Simulation • Taking Lean Back to your Workplace • Show What You Know

Self-Assessment (Slide 1.12)



LEANOhio Boot Camp

Date: _____ Name: _____ Date: _____

Before Boot Camp		After Boot Camp
① ② ③ ④ ⑤	a. Lean and Six Sigma	① ② ③ ④ ⑤
① ② ③ ④ ⑤	b. Using data to make informed decisions	① ② ③ ④ ⑤
① ② ③ ④ ⑤	c. Operational Definitions	① ② ③ ④ ⑤
① ② ③ ④ ⑤	d. SIPOC	① ② ③ ④ ⑤
① ② ③ ④ ⑤	e. 6S	① ② ③ ④ ⑤
① ② ③ ④ ⑤	f. Process Map	① ② ③ ④ ⑤
① ② ③ ④ ⑤	g. Poka Yoke	① ② ③ ④ ⑤
① ② ③ ④ ⑤	h. Data Collection	① ② ③ ④ ⑤
① ② ③ ④ ⑤	i. Standard Work	① ② ③ ④ ⑤
① ② ③ ④ ⑤	j. Clean Sheet Redesign	① ② ③ ④ ⑤
① ② ③ ④ ⑤	k. Implementing Lean	① ② ③ ④ ⑤

Rate your knowledge of each item: 1 = little to no knowledge 2 = some knowledge 3 = some knowledge and application 4 = comfortable knowledge and application 5 = great knowledge and application

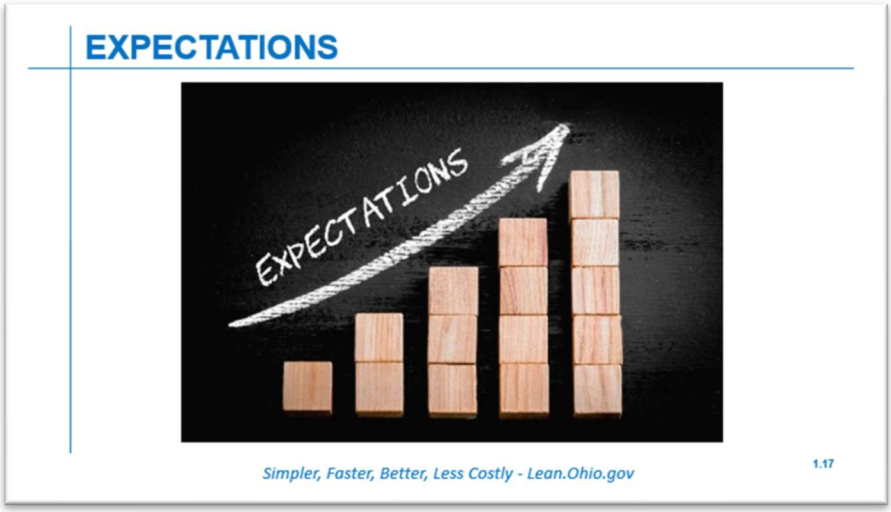
3 ZONES (Slide 1.13)

EXPECTATIONS (Slides 1.14)

What are your expectations of Lean Ohio's Boot Camp?

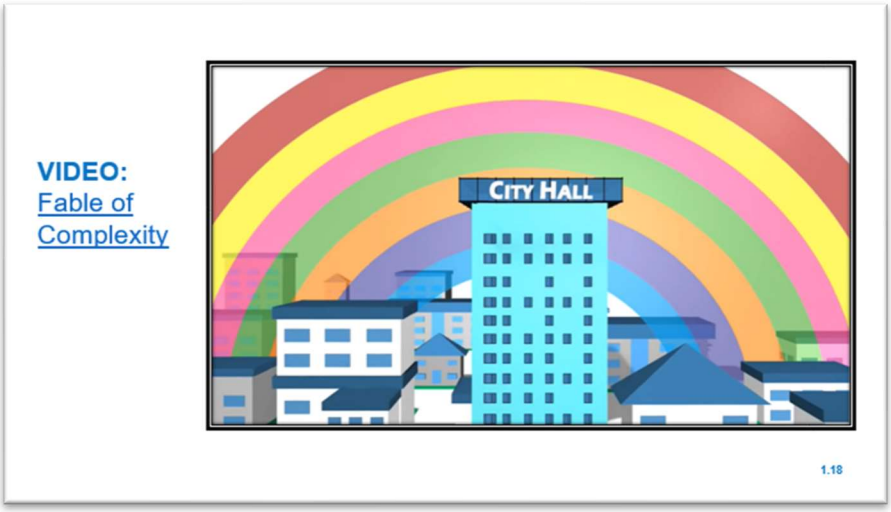
What would you like to be able to do differently?

How do you anticipate participating in the Boot Camp will help you?



Video: Fable of Complexity (Slide 1.19)

This video titled, The Fable of Complexity, is an excerpt from Ken Miller's book, **Extreme Government Makeover.** You will soon see how honorable efforts in a City's government spin out of control when attempting to meet rising work demands and reduce workload. The results are a suffocating overload!

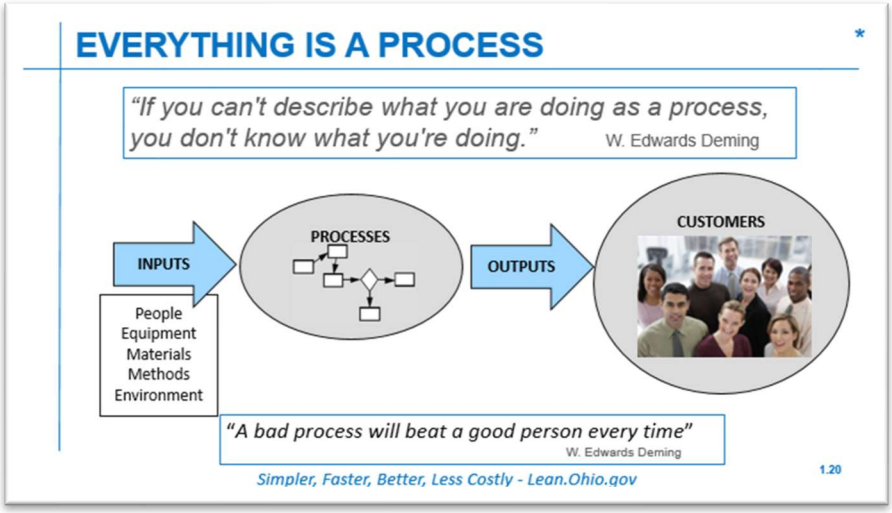


As you view this calamity,

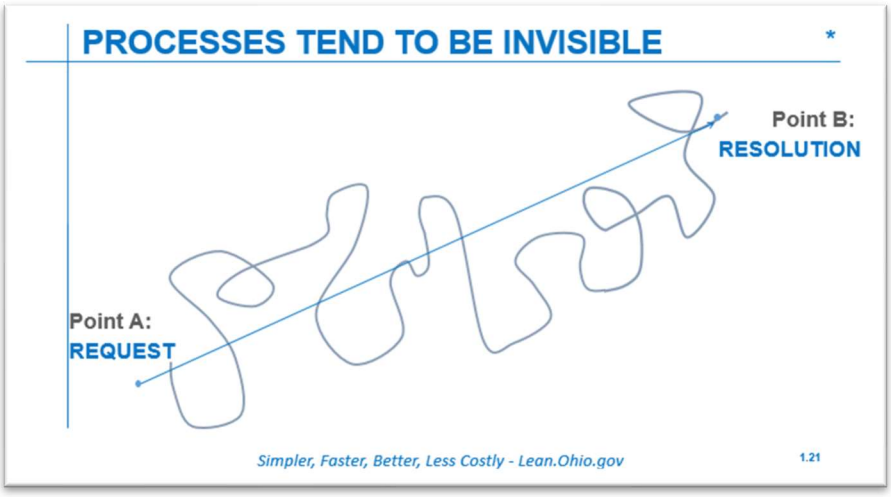
- Pay attention to the original problem and all the different attempts to fix it that follow.
- As the problem grows and grows, make note of each problem that is born from each attempted solution.
- Notice the changes among employees and the resulting frustration.
- Ask yourself, do the changes they make demonstrate authentic change, or just modified reorganization?

WHAT ARE LEAN AND SIX SIGMA

To Understand Lean We Must Understand Process (Slide 1.21)



Processes Tend to be Invisible (Slide 1.22)



What is Lean? (Slide 1.23)

Lean is defined as a systematic approach to identifying and **eliminating waste** (time, money, space, effort) through:

- Continuous improvement
- Sequencing the service or product at the pull of the customer

"Lean focuses on speed without sacrificing quality for the customer"

Lean's foundation rests on two pillars (Slide 1.24)

- **Pursuit of continuous improvement**
- **Philosophy of respect for people**

Seven Key Principles of Lean

1. Define value in the eyes of the customer
2. Identify the process for a service or product
3. Create continuous flow without interruptions
4. Reduce defects in services or products
5. Let customer pull what they want
6. Eliminate or reduce variation
7. Pursue perfection (Six Sigma)

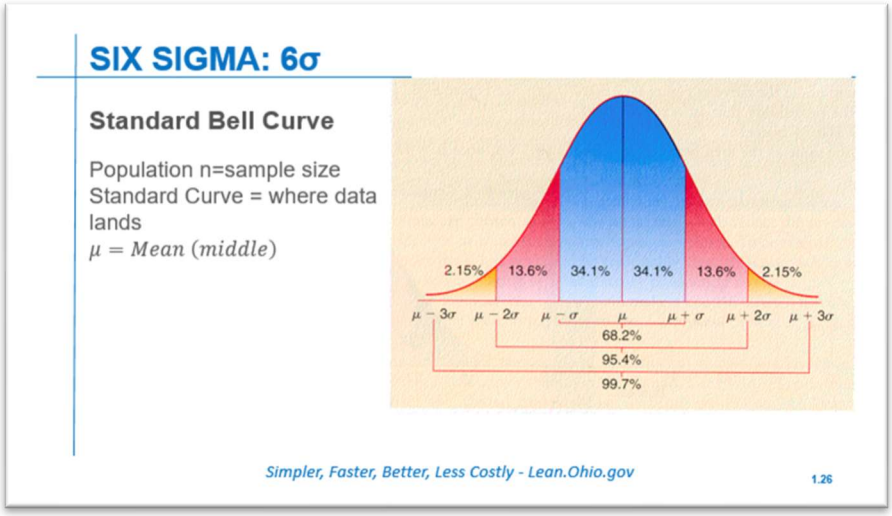
In Manufacturing or Government (Slide 1.25)

Processes are perfectly designed to give us the results we are getting. If we want different results, we have to change the process.

Six Sigma (Slides 1.26-1.27)

Six Sigma is a **business management strategy** originally developed by Motorola, USA in 1986.

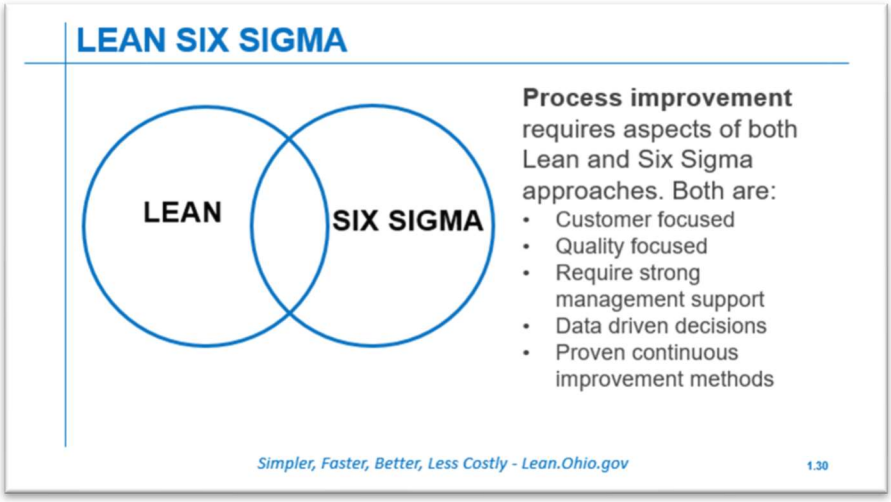
- Collection of tools to improve the quality of process outputs by:
  - Identifying and removing the causes of defects (errors) and
  - Minimizing variability in processes.



- Sources of variation
  can be identified, quantified, and eliminated or controlled
  - 99.99966% of the outputs produced are statistically expected to be free of defects. **(3.4 defects per million**)

- In 1 million applications, prescriptions, road signs, etc. 99% means that up to 10,000 of that 1 million can be incorrect. With six sigma, 99.99966% means that 3.4 out of 1 million can be incorrect.

LEAN Six Sigma (Slides 1.28-1.32)



LEAN AND SIX SIGMA

Lean	Six Sigma
PDCA Methodology	DMAIC Methodology
Reduce Time and Waste	Reduce Defects and Variation
Reduce cycle time and bottlenecks, increase flow and pull	Six Sigma Goal: 3.4 Defects per million opportunities
Process Mapping, 5S and 8 Wastes – and more	Data and Analysis Tools – and more
Achieves goals by use of less technical tools such as 5S, workplace organizational and visual controls. **(ASQ)**	Achieves goals by use of statistical data analysis, design of experiments and hypothesis testing. **(ASQ)**
Camo Belts	Green Belts, Black Belts

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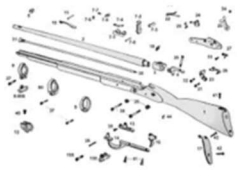
HISTORY OF CONTINUOUS IMPROVEMENT (SLIDES 1.33-1.40)

HISTORY OF CONTINUOUS IMPROVEMENT *

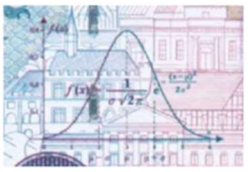
1793

Eli Whitney
Interchangeable Parts



1800s

Carl Frederick Gauss
Normal Bell Curve



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1.33

HISTORY OF CONTINUOUS IMPROVEMENT *

1901

Henry Ford
Lean Manufacturing

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HISTORY OF CONTINUOUS IMPROVEMENT *

1940s

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HISTORY OF CONTINUOUS IMPROVEMENT *

1950s

Joseph M. Juran
&
W. Edwards Deming

1970s

Toyota

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1.36

HISTORY OF CONTINUOUS IMPROVEMENT *

1980s

Six Sigma

MOTOROLA

1990s

Black Belt

Allied Signal

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1.37

Quality Way Pioneers (Slide 1.40)

1. W. Edwards Deming (1900-1993)

He famously quoted having said**: "95% of quality problems are due to system, while only 5% are due to employees"** W. Edwards Deming developed a list of 14 points in which he emphasized the need for change in management structure and attitudes. He is credited with starting the modern quality improvement movement. He:

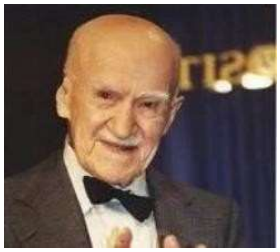
- Introduced statistical methods to American industry during World War II
- Focused on quality, what the customer needs and wants
- Developed a process-oriented approach
- Acknowledged and involved workers' expertise
- Understood variation using statistical analysis

2. Walter A. Shewhart (1891-1967)

PDCA, Plan, Do, Check Act is attributed to **Walter A. Shewhart** and was popularized by W. Edwards Deming. Shewhart worked at the Hawthorne plant of Western Electric, where he developed and used control charts. He is sometimes referred to as the "Father of Statistical Quality Control (SQC)" because he brought together the disciplines of statistics, engineering, and economics.

As the 'Father of Statistical Quality Control', Shewhart:

- Developed control chart techniques: identified common cause, and special cause variation
- Developed the methodology of the PDCA Cycle (known as the Shewhart Cycle or Deming Cycle)

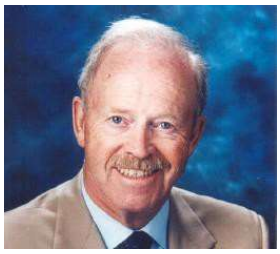


3. Joseph M. Juran (1904-2008)

Joseph M. Juran pursued a varied career in management beginning in 1924 as an engineer, executive, government administrator, university professor, labor arbitrator, corporate director, and consultant.

Juran is the Co-founder of the 20th century quality movement who

- Worked with Japanese to introduce quality concepts
- Focused on quality control as a management tool rather than specialist's technique
- Emphasized the cost of quality. "The further from the source, the greater the cost."



4.Philip Crosby (1926-2001)

Phillip Crosby's philosophy was "Do it Right the First Time". He originated the 'zero defects' concept. A Business Person of Quality, Crosby was known for the following:

- Managed on the basis of Quality, based on DIRFT "Do it Right the First Time".
- Made Quality meaningful and accessible to American executives
- Promoted addressing Quality problems through existing management structures rather than from statistical basis

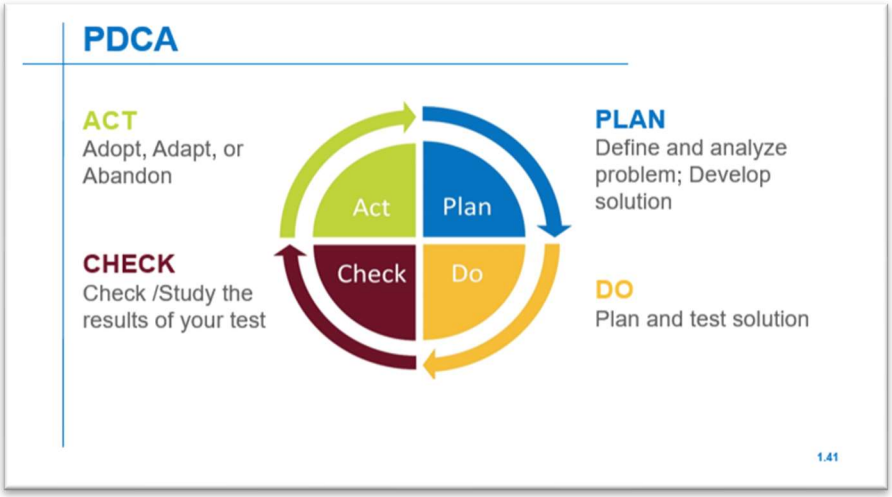
5. Kaoru Ishikawa (1915-1989)

Kaoru Ishikawa is known as the “Father of Japanese Quality” He pioneered the concepts of Quality Control as follows:

- Implemented Quality Circles
- Developed the Cause and Effect diagram focusing on root cause analysis
- Worked with Deming through the Union of Japanese Scientists and Engineers
- Made ‘Quality Movement’ a nationwide phenomenon

PROCESS IMPROVEMENT (SLIDES 1.41-1.61)

A process is the interaction of people, methods, materials, equipment, measurement, and the environment to perform a task or produce an output. Process Improvement is making improvements to that make the process simpler, better, faster and less costly without compromising quality of the product, team, suppliers, or customers.



Process Improvement Activity: Card Game

Required Roles: team leader, time keeper, and a recorder.

Each team is given a shuffled deck of cards, face down in the middle of the table

The goal is to place the cards in Ace-King order displayed face-up on the table as quickly as possible. The groups will have 3 Rounds in which to improve their times and perfect their process.

Groups will have 5 minutes initially to plan their process and set their time goal for how long it will take to put the cards in A-King order for each suit, displayed face-up for any observer for Round 1.

Plan for Round 1 _____

Plan for Round 2 _____

Plan for Round 3 _____

PDCA (Slides 1.44-1.55)

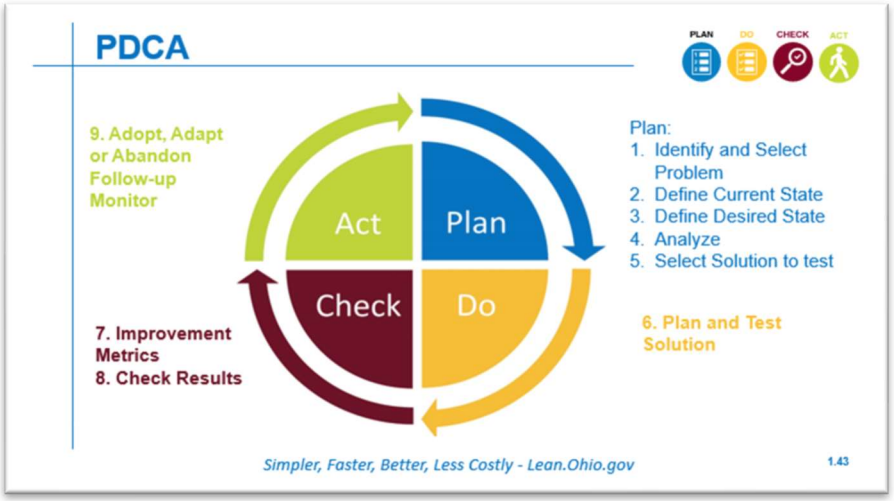
Dr. W. Edwards Deming said, *If you can't describe what you are doing as a process, you don't know what you're doing."* Everything has a process, and processes can be improved.

Dr. Deming promoted the Plan-Do-Check-Act Cycle or Plan-Do- Study-Act Cycle as the method for continuously improving processes. The purpose is to better meet the needs and expectations of the customers in an efficient manner.

The PDCA cycle and Lean thinking and tools will allow you to make meaningful, sustainable, positive change in your work and workplace. It requires you to thoroughly understand the problem and thoughtfully assess where the best opportunities lie rather than jumping immediately to solutions, which is usually our first impulse. Lean tools, like SIPOC, Process Mapping, Poka Yoke, Standard Work and many others provide a structured approach to making improvements.

The Plan-Do-Check-Act Cycle is a four–step model for making improvements

- Simple standardized method of improvement
- Repeatable and consistent
- “Scientific Method”
- Just as a circle has no end, the PDCA cycle should be repeated again and again for continuous improvement



A3 (Slides 1.56-1.59)

Title: Your Name:	Date Started: Current Date:	Team: Sponsor:
P1: Background/Why change is needed	P4: Analyze	C7: Check Results
P2: Current State	**5:** Potential Solutions	**C7**: Other Results
P3: Project Goal	**D6:** Action Plan & Test	**A8:** Follow-up and Monitoring

Title: Date Started:	Current Date:	Team: Executive Sponsor:
P1: Why change is needed	**P4: Analysis**	**C7: Improvement Metrics**
Why are we working on this problem/opportunity? What is the business case? What is the pain point? What is the impact? Scope?	What is preventing achievement of the goal? What is the root cause or causes of the problem? Fishbone or 5 whys.	Collect data. Check the results of your improvement. Did you close the gap? Simpler, faster, better, less costly.
P2: Current State	**P5: Potential Solutions**	**C8: Check Results**
What is currently happening? Extent of the problem? Data. Statement of the problem. Graphically present a picture of the current state.	Brainstorm solutions. Analyze them. Select a solution to test.	What went well? What didn't? If you didn't achieve goal, then go back to test another solution. If goal is achieved, put into standard work.
P3: Future State	**D6: Action Plan**	**A9: Follow-up and Monitoring**
What specific outcome is required? What is the goal? What is the gap? Specific improvements in performance needed? Pictures/graphs.	Develop an action plan for running your test (or pilot) and implement it.	What is the plan for ensuring that solution benefits are maintained? How will you monitor? 1-58

PDCA: Roadmap to Improvement (Slide 1.58)

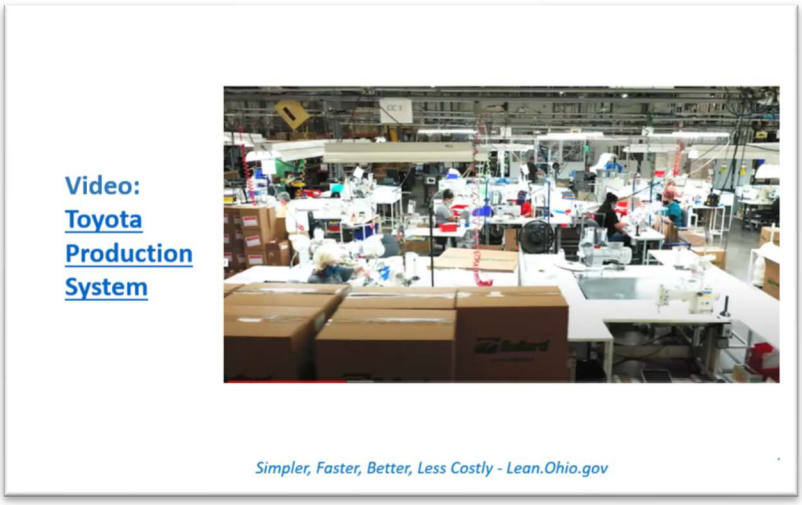
PLAN **P1**	Identify Problem (**problem selection guide**)	Gather data and background (How do you know it is a problem?) What, When, Where, How much	Scope the issue: Develop **SIPOC;** Identify customer requirements (**survey, focus group, interviews**)	Develop charter/ start A3
P2	Determine current state	Develop **Data Collection Plan** and gather data	**GEMBA –** go observe the process in the workplace. Develop **a Process Map**	Identify waste (TIM U WOOD) and pain points
P3	Establish target goals/future/ desired state	What **measures** will tell you if you are successful?	Make **goals SMART**	
P4	Analyze the problem	Examine the data, Understand the causes of problem	**Fishbone diagram**, **Pareto diagram**, **Run chart, bar chart**	Find the Root cause of the problem, **5 Whys**
P5	Determine best improvement (s)	**Brainstorm** improvement ideas, Evaluate (**Impact/ control matrix**)	Select improvement (s) Use **flow**, **poka yoke, standard work.** Develop new **process map**	State a hypothesis: If we do X then we think Y will happen
DO				
	Test your Improvement (s)	Plan implementation of a test of the proposed solution	Implement test solution. Gather data to measure success	Action register, Gantt chart Data collection tools
CHECK/ STUDY				
	Check/study the results of your test	Evaluate results: Compare before and after measures	Seek feedback from customers	Determine if the actions taken were successful
ACT				
	Adopt, adapt or abandon. Monitor Tell your Story	Implement **standard work. OR** test another solution	Monitor: Collect data & review periodically. Track results using **visual management**	Tell your story **Complete the A3**

This page will be handy for future reference!

PDCA, A3 and DMAIC (Slide 1.59)

PDCA		A3	DMAIC	TOOLS
PLAN 	Identify the problem or opportunity for improvement	Clarify problem	**Define**	Project selection guide Charter, SIPOC, scoping
	Understand the current situation (background & measure)	Break down the problem	**Measure**	Gemba Walk, Process Mapping, Data Collection
	Identify the goal and the gap	Set a target		
	Analyze the situation (determine root cause)	Root cause analysis	**Analyze**	Waste - VA/NVA/ NVAN, Data Analysis, Pareto, Fishbone Diagram, 5 Whys, Root Cause, Statistical Process Control
	Identify potential solution(s), select solution to test. If we do ---- then ---- Will happen	Develop counter measures		Brainstorming, Affinity Diagram, Impact/Control matrix, Flow (Batching, Push/Pull) Poka Yoke, 5S, Kan Ban,
DO 	Plan and implement a test of the proposed solution	Implement counter measures	**Improve**	Action Register, Gantt Chart, Data collection
CHECK 	Study the results of the test	Evaluate results		
ACT 	Act on lessons learned, adjust as needed, Implement system-wide, Monitor	Standardize success, Monitor	**Control**	Standard work, Visual Management

Video: Lean in Action – TPS (Slide 1.60)

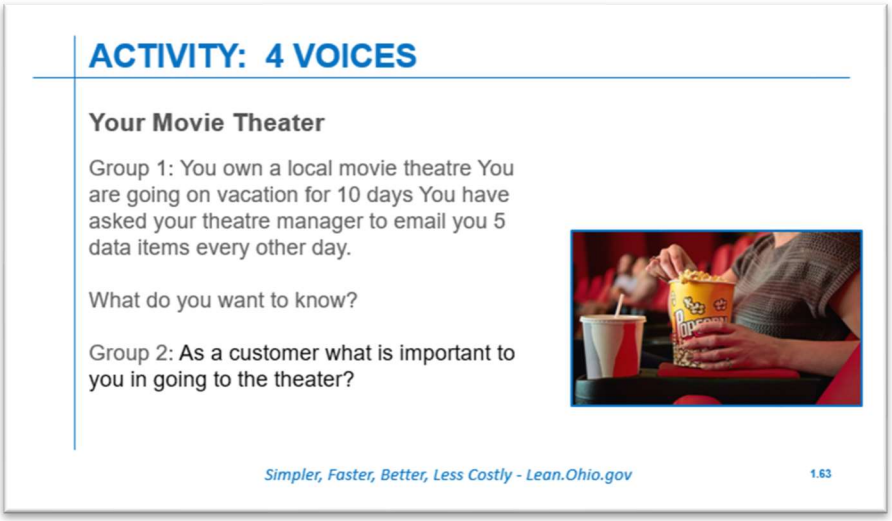


4 Voices (Slide 1.62-1.62)

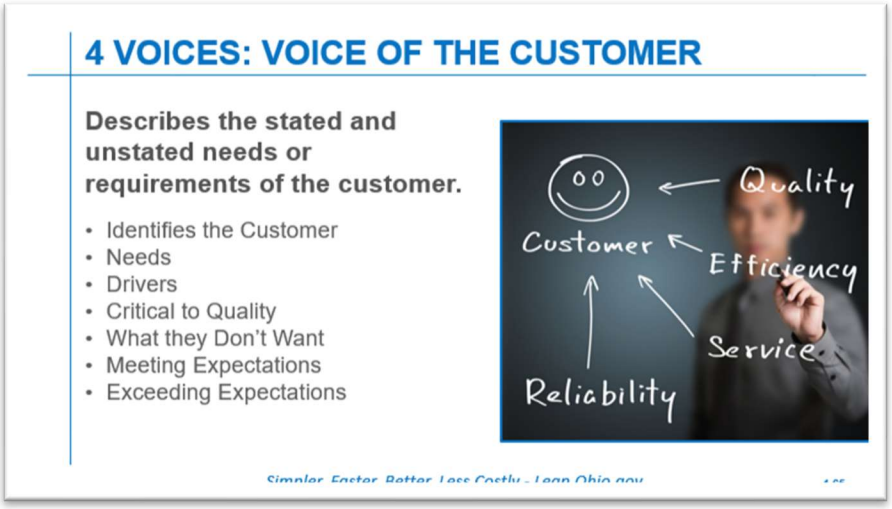
An important Lean tool is listening to the “4 Voices”. This lesson will tell you what the 4 voices are and give you the opportunity to express and discuss each.

Activity: 4 Voices (Slides 1.63

Activity: 4 Voices (Slide 1.64)



Voice of the Customer (VOC) (Slides 1.66-1.70)

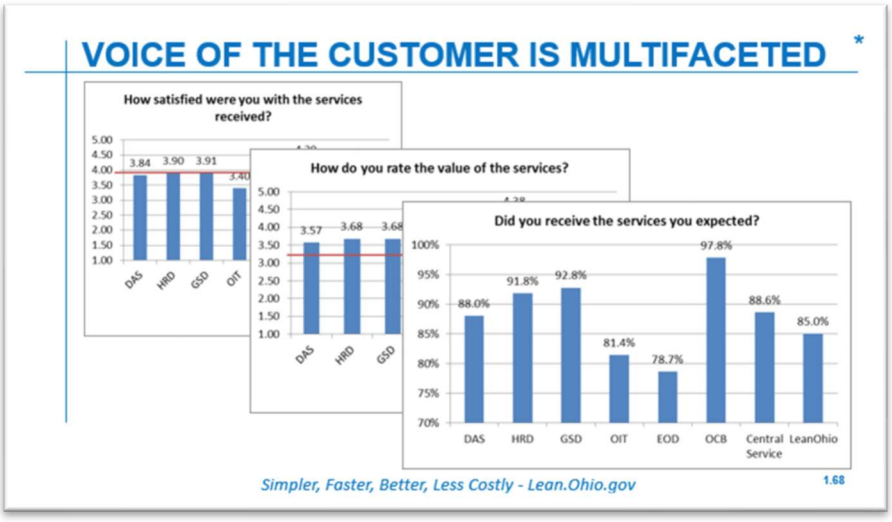


Customer needs and expectations need to drive our improvement efforts.

These are usually stated in general terms and need to get translated to more measurable terms.

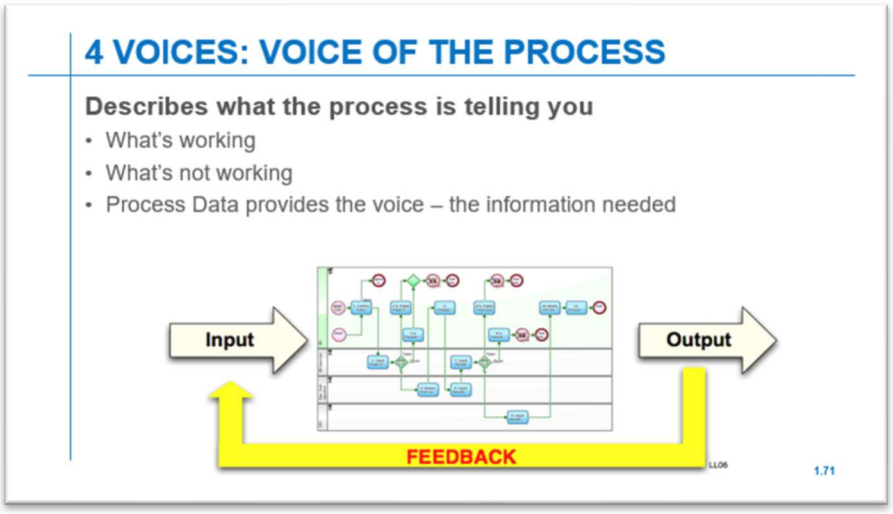
Voice of the Customer (VOC)

- Immediate feedback – close to the service
- Utilize social media
- Web utilization
- Raised expectations
- Want it faster
- Want it on-line
- Want it INSTANTLY



Voice of the Business (VOB) (Slide 1.71)

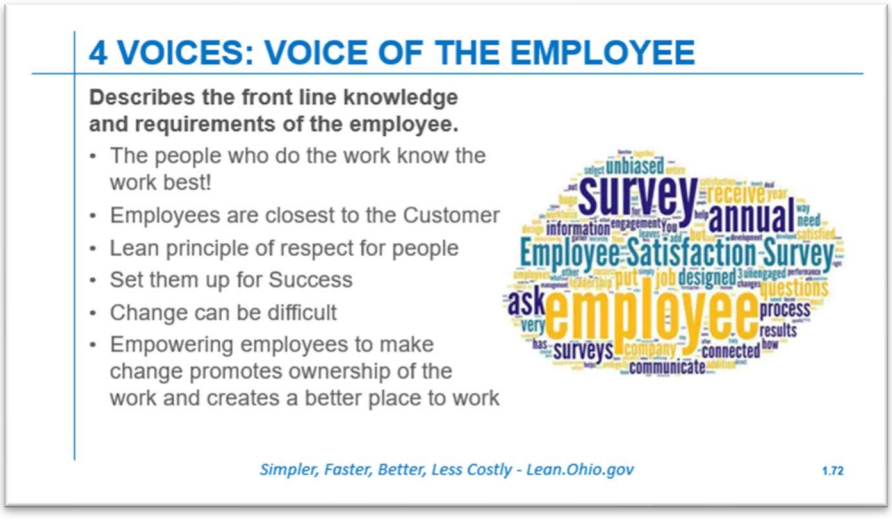
Voice of the Process (VOP) (Slide 1.72)



Things to Remember About the Voice of the Process (VOP)

- A process produces what a process produces including variation and defects.
- A process is not necessarily designed to give the customer what they want.
- Many times the voice of the process is not necessarily consistent enough to satisfy the voice of the customer.
- Customer needs and expectations drive innovation. Although they may seem difficult, innovations can build better processes.
- Automation is sometimes the right answer but not always.
- To change the outcome, one must change the process.

Voice of the Employee (VOE) (Slide 1.73)



Video: Seinfeld CarReservation (Slide 1.74)

ACTIVITY: DEPARTMENT OF PREVENTION (DOP) (SLIDES 1.76-1.78)

DoP SIMULATION RULES

- DOP needs to process 16 apps every day (8 min)
- Each DOP employee is required to work until the end of the day
- Every position has written instructions that must be followed
- Each DOP employee is responsible for getting their own materials
- Materials cannot be shared and must be transported in the authorized folders only
- Each folder can hold only two applications
- Forms will be processed in **batches of two**
- Extra materials can be found in the Supply Area
- All DOP employees are responsible for moving their completed work to the next worker
- Folders cannot be moved across the table. All work must travel around the outside of the table
- Running is not permitted

- You are required to follow the written instructions

Refer to Simulation Instructions and Handouts for job assignments, stations, and more detailed instructions

SIPOC OVERVIEW

Video: SIPOC (Slide 1.81)

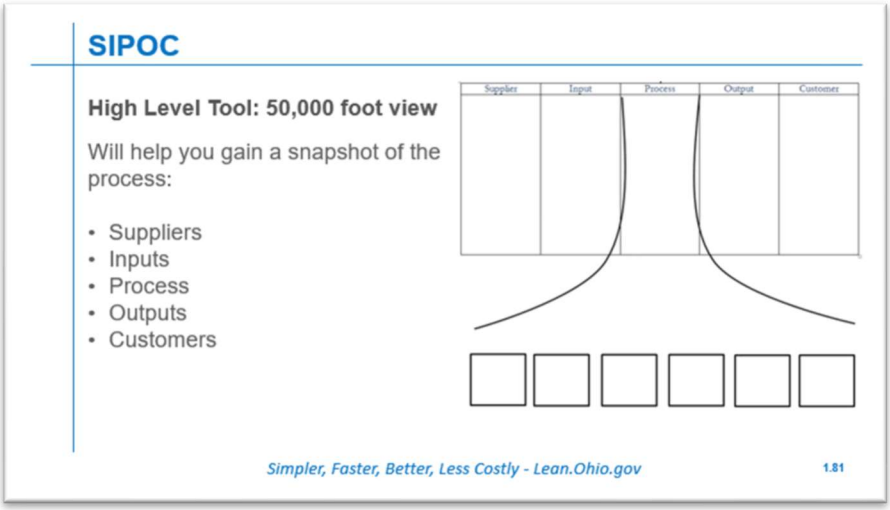
This video entitled, SIPOC details an important Lean tool. A SIPOC is used to graphically outline all the relevant elements of a process and helps to understand the systems aspect of a process. SIPOC depicts how the given process serves the customer. It is a great tool to share with senior leadership.

What are some tips the video gives about SIPOC?

SIPOC (Slide 1.82-1.83)

SIPOC clearly defines the **Purpose** and **Scope** of a process. A SIPOC Diagram is used to identify all relevant elements of a process improvement project before work begins.

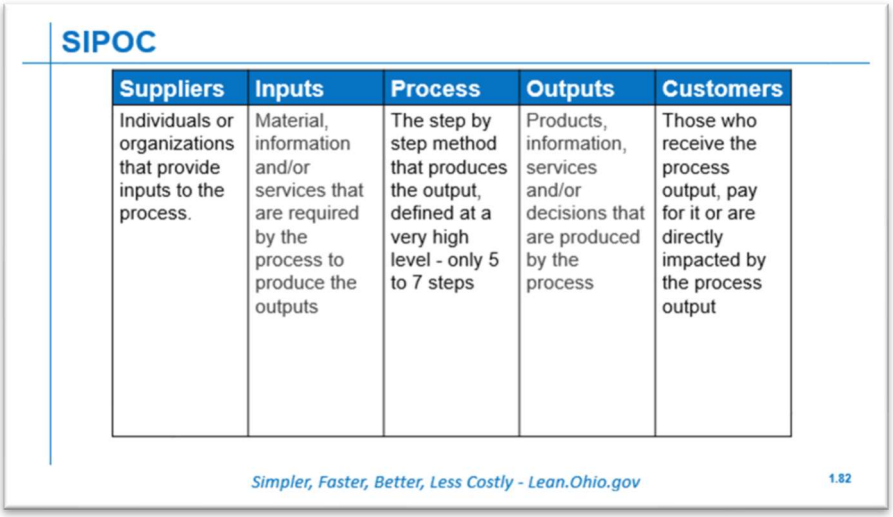
- High Level: 5-7 process steps
- Reach consensus
- Use Post-It-Notes to document each step



- Beware of those that want to get into the details of process
- Great tool to share with senior leadership

Suppliers

Suppliers are individuals or organizations that provide inputs to the process. These can be internal (e.g. department, division or individuals) or external (e.g. vendors or individuals). It is also possible for a supplier to also be a customer. Suppliers are the source of materials, services or information provided to a process.



Inputs

Inputs are typically the people, machines, methods, materials and environment. In other words, the products, material, information and/or services that are required by the process to produce the outputs. Your job in the SIPOC is to identify, at a high level, and document the inputs. It can even include factors that influence the process. For example, in a paint shop, environmental factors such as humidity can affect the process.

Process

Process. The process is the step by step method that produces the output. In the SIPOC, the process is defined at a very high level, only 4-5 steps, starting with defining the beginning and end steps. Remember this…when developing a SIPOC, **ALWAYS BEGIN WITH THE PROCESS!**

TIPS:

- Start with the Process
- High Level: 5-7 process steps
- Start with the first and last steps of the process
- Fill in the 3-5 steps in between
- Use post it notes to document each step
- Stay at a high level!
- Reach Consensus

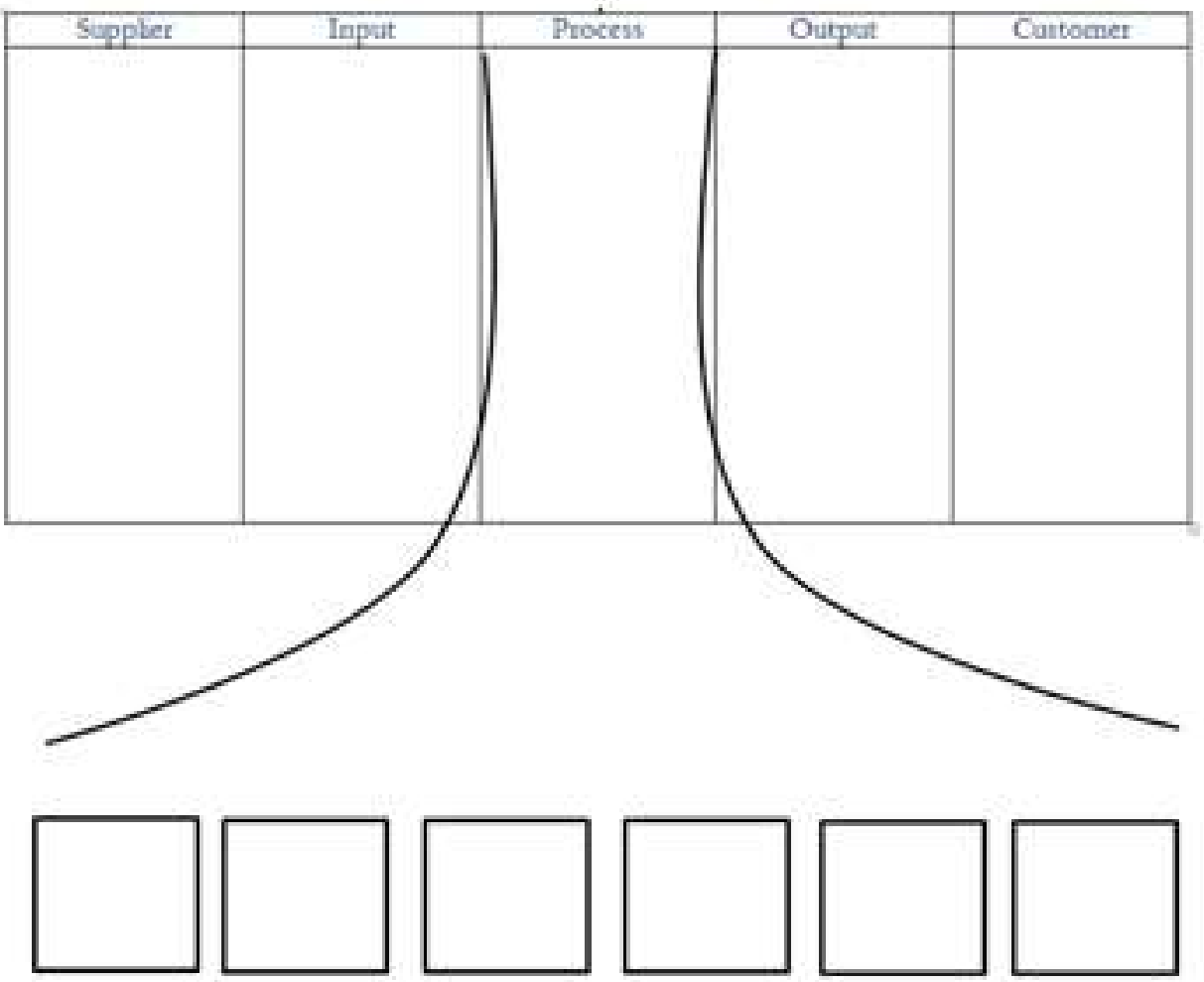
Outputs

Outputs are “What the process produces for the customer”. Outputs are typically products, materials, information, services and/or decisions that are produced and provided to the customer (internal or external). Keep in mind that not all outputs are desirable.

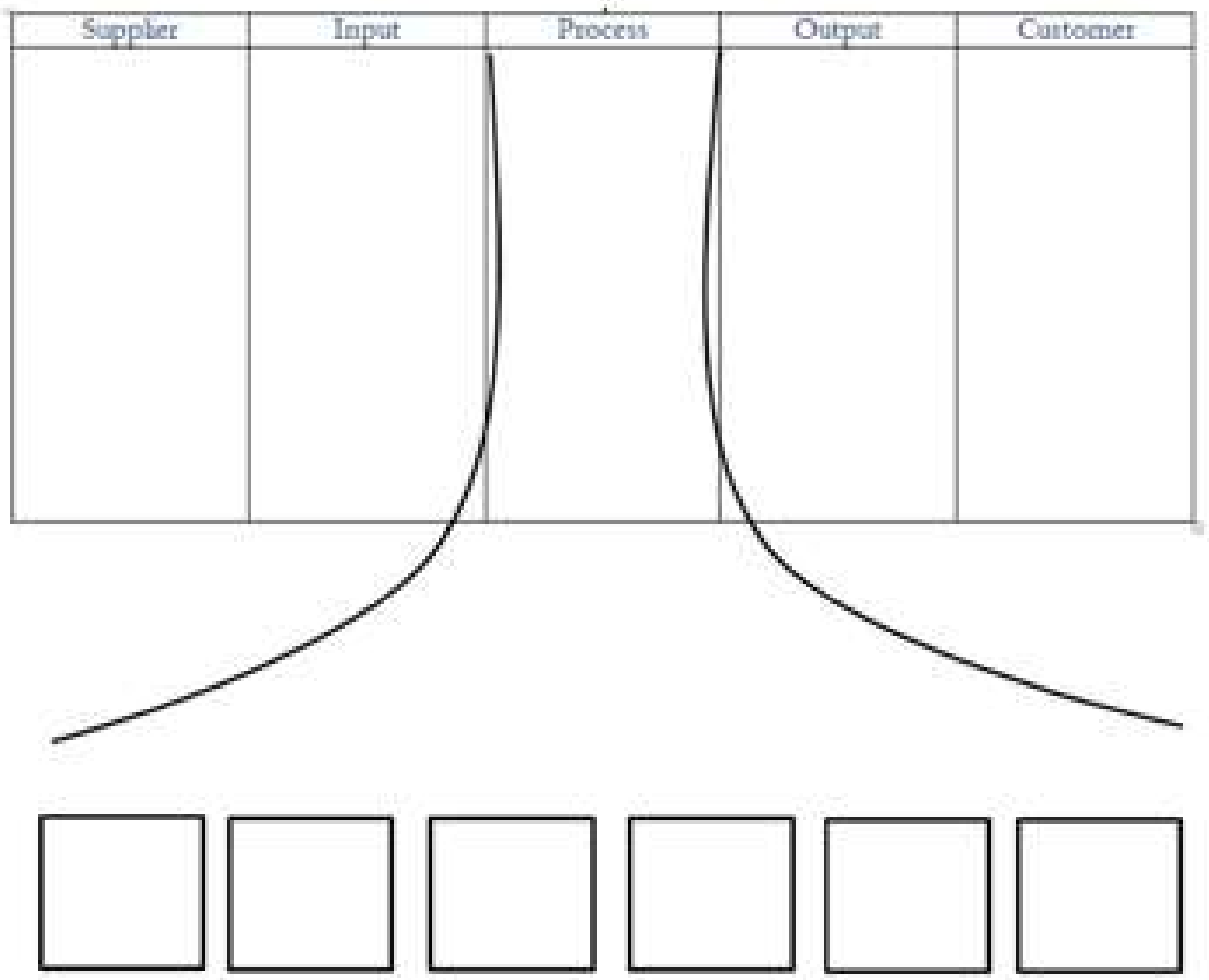
Customers

In a SIPOC, you will identify and document who the **Customers** are. Typically, they are the people or entities who pay for the process output or receive the process output. They can also be those who are directly impacted by the process output.

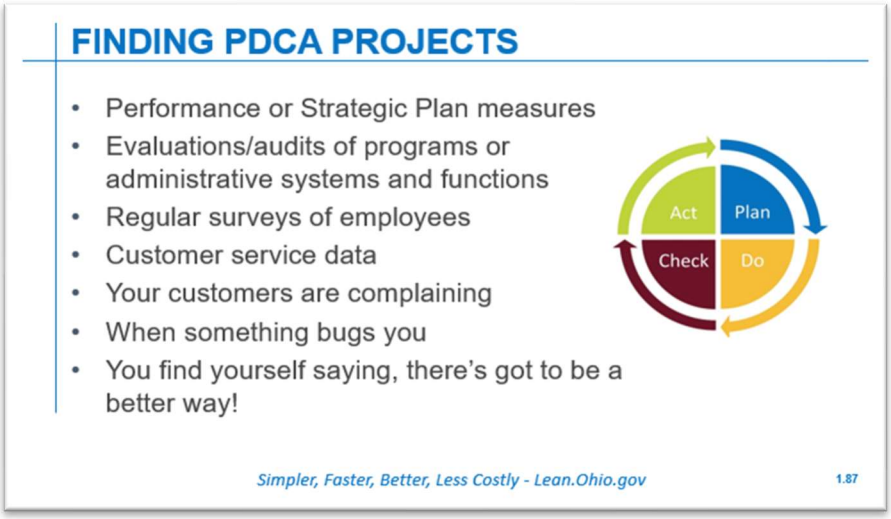
ACTIVITY: SIPOC CHOCOLATE CHIP COOKIES (Slide 1.85)



ACTIVITY: SIPOC DOP (Slide 1.86)



FINDING PDCA PROJECTS (SLIDE 1.88)



Project Selections Pitfalls (Slide 1.89)

- Morale, communication, etc.
- Preconceived solutions
- Small or trivial – doesn't matter to anyone
- Other peoples' problems
- The boss' policy decisions
- You are the primary customer
- Something that is/will be undergoing major change

ACTIVITY: Project Selection Considerations (Slide 1.91)

Instructions

- Generate a list of ideas of improvement opportunities
- Clarify those ideas
- Reduce the list and prioritize
- Using the Project Selection Criteria, choose the one idea that is most likely to be a successful first process improvement project
- Pair up with 1-2 others and share ideas. Clarify for each other and make sure the selected projects fit the criteria.

The following 7 steps will help you select your improvement project:

Step 1. List several ideas for process improvement projects:

_____

_____

_____

_____

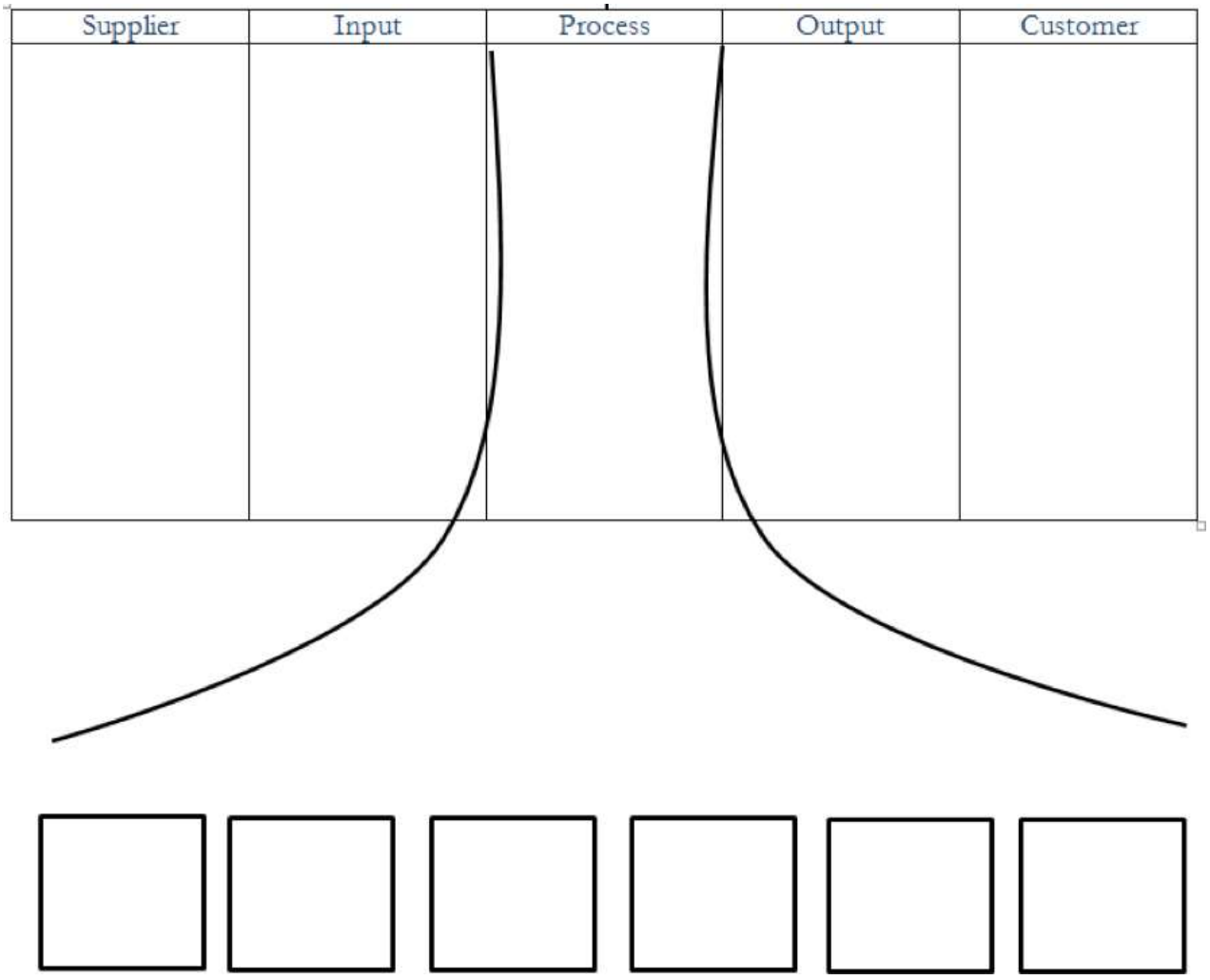
_____

Step 2. Review this checklist against your project ideas. Choose the one that is most likely to be a successful first improvement project.

PDCA Criteria for Project Selection	Idea 1	Idea 2	Idea 3
Project Idea			
1. Technical Issues			
Is it a process?			
Is the scope manageable (small/low hanging fruit)?			
Can it be reliably measured?			
Is data available?			
2. Strategic Issues			
Is it important?			
Is it a “sacred cow”?			
Does it support the organization’s priorities?			
Customer focus?			
High probability of success in 3-6 months?			
3. Empowerment Issues			
Is it within my/our control?			
Can I/we devote adequate time to it?			
Do I/we already know the solution?			
Is the organization prepared to implement change?			
Do we have Leadership Support?			

Step 3. Get someone to help you review and think critically about these project ideas. Select and refine your idea as needed.

Step 4. Scope your project. Develop a SIPOC. Identify the first, last, and 3-5 major steps in the process. Identify the Output, the Customers, the Inputs and Suppliers.



Step 5. List the job functions or categories of people you will want on your team

Step 6. What measures will let you know that you are successful?

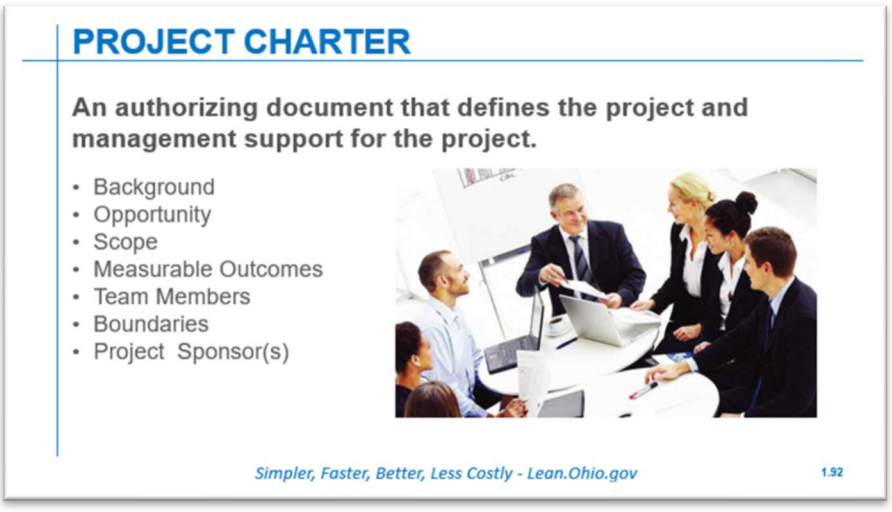
Step 7. Develop a goal statement for your project:

To improve_____process to achieve _____

for our customer _____

Project Charter (Slides 1.92-1.104)

The Project Charter or Project Approval Form is a tool for clarifying why a team is being created, what the team will be working on, what the scope of the project is, what the expected outcomes are, and how they will be measured. . As part of the Plan phase of PDCA, and Define phase of DMAIC, a project charter is meant to be a proverbial living, breathing document.



Project Contact Information (Slide 1.95)

Background and Opportunity (Slide 1.96-1.98)

This includes the project background:

- What's been happening?
- Why it is important to work on this project.

The Problem/Opportunity Statement answers the following questions:

- What is the reason we are working on this project?
- When does the problem occur?
- How often?
- What is the current (or potential) impact?

Scope (Slide 1.99)

We cannot boil the ocean, so how do we make sure we are taking on a project that we can work from start to finish?

Bound the project with a start and stop point: This will better assure that the project will remain within scope (the work we are focusing on).

Points outside of scope should be tabled for another conversation or project.

Project Goals (Slide 1.99)

What results do you anticipate from this project? E.g. lead time will be reduced 35%, defects be eliminated or at least reduced 75% percent, etc. Set challenging but realistic goals.

Remember, people want to be part of something successful.

Project Boundaries (aka. Constraints) (Slide 1.99)

Every project has to have boundaries. Know what you do and do not have the authority to change. For example, if you cannot change a policy because it takes an act of legislation, that is a boundary. Often boundaries will be stated as no new staff or money

Performance Metrics (Slide 1.99)

Metrics are measurements that identify what measures will be used to determine success, what metrics are available, the baseline data and the metrics to be improved. If you don't measure, how will you know if there was improvement? Data will help drive project decisions.

Projected Benefits (Slide 1.101)

Benefits describe other things other than those that you are measuring that could happen as a result of the project. Increased customer satisfaction, clarity about jobs and duties, - things that may be less measurable.

Team Members (Slide 1.101)

This identifies who needs to be on the team clarifies roles, helps to identify any gaps, and provides accountability for the project.

DOP SAMPLE AND BLANK CHARTERS ON FOLLOWING PAGES.

DOP Example

Project Background (what has been happening and context of project)

The DOP applications processing division reviews applications from state agencies or departments interested in receiving funding for ne w process improvement activities or a continuation of an existing project. In order to meet customer demand, the division needs to proces s 16 applications per day.

Problem/Opportunity Statement (will detail the issue that the project team wants to improve. Will include historical data, what areas of the a gency are affected, how long the problem has existed, any other symptoms of the problem. Problem statement does not include the proposed s olution.)

Since January 2014: (1) the division has been experiencing a backlog in processing of the applications, despite a consistent level of applications from previous years (2) customer complaints have increased by 50% due to delays averaging 3 days. (3) overtime for all 7 division employees has been 4 hours per day, 5 days per week. (4) employee morale has declined (5) processing errors have incr ease by 25% (6) poor workload distribution including staff underutilization, e.g., "down" time.

SCOPE (DEFINE BOUNDARIES)	**First step in the process:**
	Receive the application
	Last step in the process:
	Inform the applicant of decision on application (e.g., mail/Email/phone)

Project Goals - outline what you hope to achieve at the end of the project. Goals should be carefully thought out and expressed, describe improvements and deliverables of the project, describe benefits to customers and stakeholders , and provide criteria to evaluate if the project was a success. Goals should be SMART: Specific, Measurable, Attainable, Releva and Time-bound.

The goals of this project are to (1) meet customer demand/eliminate the back log by processing 16/day (2) reduce customer com plaints and the error rate to 1% or less and (3) eliminate overtime

Project Constraints (also includes Event out of scope) -What are the limits on scope of process change allowable as defined the team sponsor, legal restrictions, budget, etc.) Specifically what the team has authority to do and not allowed to do.

Still required to process 16 Forms in six minutes/one day. Workers must not run or endanger others in the course of doing their jobs. N o IT changes can be incorporated. Director still has final Veto rights. No one can be hired or fired – but the job roles can change. NO ad ditional money. NO changes to union agreement or laws. NO changes to eligibility criteria for projects.

Performance Metrics: What measures will tell you if you are successful. (typical related to time, quality, cost)	**Performance Metrics**			
	A. Current	**B. Goal**	**C. Final**	**% Change**
Applications processed per day		16		(C-A)/A
Error rate/% (e.g., award money when it shouldn't be or deny when it should be)				(C-A)/A
Eliminate overtime				(C-A)/A

Projected Benefits (potential financial and intangible benefits)

Improved employee morale;; elimination of overtime;; happier customers;; more time for employees to work on mission- critical work

Project Team

Team Lead:	Who chairs the 1st mtg? Whose idea was this? (may be sponsor, process owner)
Team Champion/Sponsor: Process Owner:	Who has the authority to approve the changes & authorize resources for the project? (ma be team lea or process owner)
Team Members: Subject Matter Experts:	Who owns this process from beginning to end? Who makes decisions on this pro cess? (may be champion/sponsor)
	Anyone involved in the process
	Could be HR, labor relations, legal dept., technology dept.

Project Champion/Sponsor and Process Owner Sign-Off: I am committed to supporting this project and implementing the teams improvements.

LEANOhio **LeanOhio Project Charter**

Project/Event Title

Project Facilitator

Agency/Organization

Project **Mentor**

Charter Last Updated Date:

Project Background

Problem/Opportunity Statement

SCOPE (DEFINE BOUNDARIES)	**First step in the process:**
	Last step in the process:

Project Goals

Project Constraints

Performance Metrics: Measures that will tell you if you are successful.	**Performance Metrics**			
	Current	**Goal**	**Actual**	**% Change**

Projected Benefits

Project Team	
Team Lead:	
Team Champion/Sponsor:	
Process Owner:	
Team Members: Subject Matter Experts:	

Project Champion/Sponsor and Process Owner Sign-Off: I am committed to supporting this project and implementing the tea improvements.	
Sponsor Signature:	
Process Owner:	

LeanOhio Project Charter

Project/Event Title

Project Facilitator

Agency/Organization

Project **Mentor**

Charter Last Updated Date:

Project Background

Problem/Opportunity Statement

SCOPE (DEFINE BOUNDARIES)	**First step in the process:**
	Last step in the process:

Project Goals

Project Constraints

Performance Metrics: Measures that will tell you if you are successful.	**Performance Metrics**			
	Current	**Goal**	**Actual**	**% Change**

Projected Benefits

Project Team	
Team Lead:	
Team Champion/Sponsor:	
Process Owner:	
Team Members: Subject Matter Experts:	

Project Champion/Sponsor and Process Owner Sign-Off: I am committed to supporting this project and implementing the tea improvements.	
Sponsor Signature:	
Process Owner:	

A copy of this template is available at : http://lean.ohio.gov/Resources.aspx

DAY TWO

MAKING THE INVISIBLE VISIBLE

DAY TWO

LEAN Ohio Boot Camp

Focus

The focus today is ‘Making the Invisible Visible’. We began this process in Day 1 with SIPOC. We will continue with more Lean Tools.

What Day Two Will Cover:

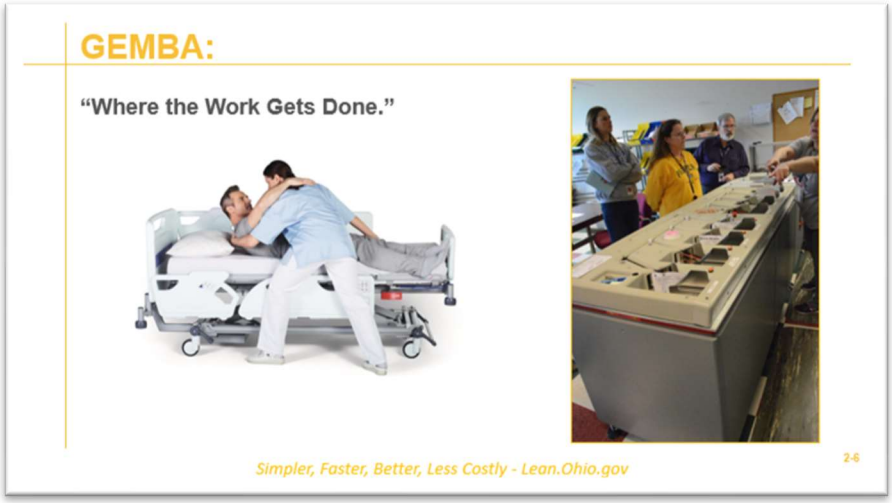
- Gemba
- Process Mapping
- Identify Waste
- Value Add/ Nonvalue Add Activities
- Interpreting a Process Map
- Metrics and Data Collection
- Root Cause Analysis – Fishbone Diagram
- 5S
- Teams and Team Dynamics

MAKING THE INVISIBLE VISIBLE: GEMBA
(Slides 2.5-2.7)

Gemba is a Japanese term for “where the work gets done”.

One way to make the invisible visible is to go to the Gemba and see first-hand with one’s own eyes what is really happening versus what you think is happening.

A Gemba walk is very different than “Management by walking around”.



A Gemba Walk seeks to understand how things are actually working by observing the work and listening to employees.

VIDEO: GEMBA Where the Work Gets Done”

Six Reasons why Gemba Walks are Helpful

These reasons speak to a leader's role. However, you don't have to be in a leadership role to understand the importance of Gemba.

1. Gemba walks build relationships with those who do the work and creates value in the organization
2. Interacting with employees at the Gemba enables leaders to uncover problems and eliminate them quickly.
3. Gemba walks provide leaders with the opportunity to praise people for the good work that they do.
4. Management can be sure that the work that needs to be done is getting done.
5. Goals and objectives can be clearly communicated face-to- face.
6. Visible leaders who are intent on listening to the people doing the work tend to increase employee engagement.

PROCESS MAPPING

Process Mapping (Slide 2.8-2.9)

A Process Map is 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.

The purpose is to understand the current process in order to identify opportunities for improvement by mapping all of the steps in the current process and identifying the job function that completes each step.

It is a more detailed approach than a simple flowchart. It is BIG, BOLD and VISIBLE.

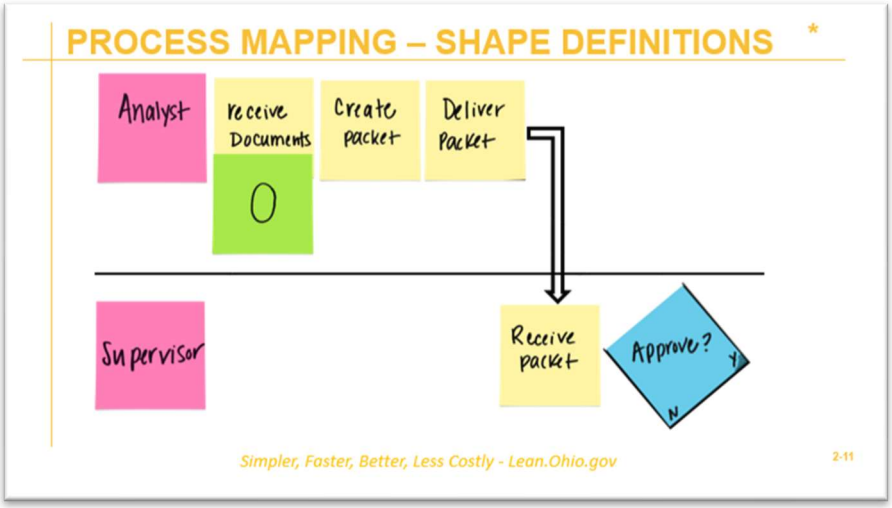
Video: Process Mapping (Slide 2.10)

VIDEO:
Process Map

Process Mapping Shape Definitions (Slide 2.11)

Decision

Function



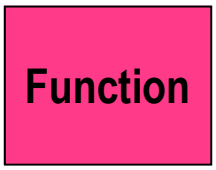
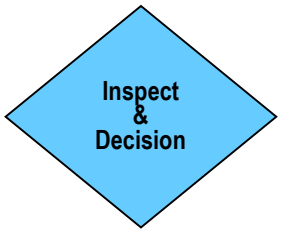
Handoff

Loopback

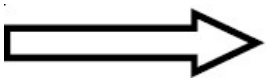
Parking Lot

Swim Lane

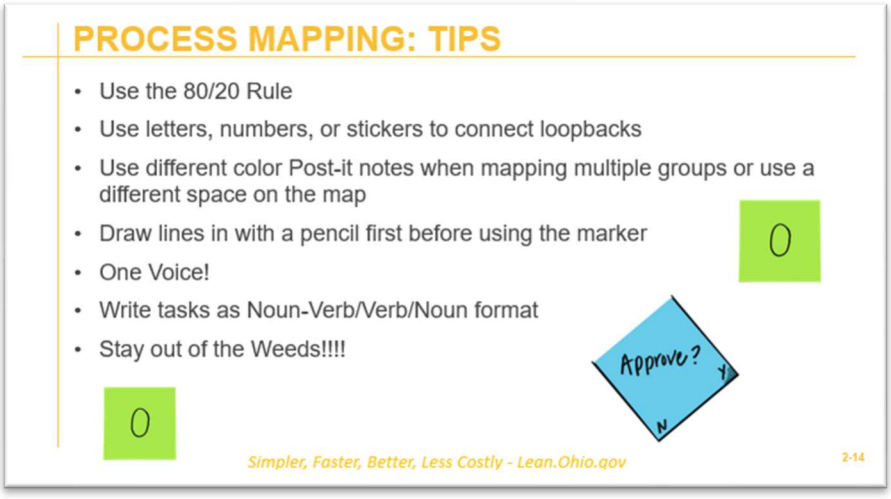
Process Mapping Key (Slide 2.12)

	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 / decision (i.e. in-baskets, out-baskets, waiting to be batched)

Process Map Arrows (Slide 2.13)

	**Single straight arrow** – used between tasks performed by same person or area, but no physical movement has occurred.
	**Box arrow** – indicates physical movement of information / product from one person / function to another.
	**Jagged arrow** – indicates electronic movement of information from one person / function to another.

Process Mapping Tips (Slide 2.14)

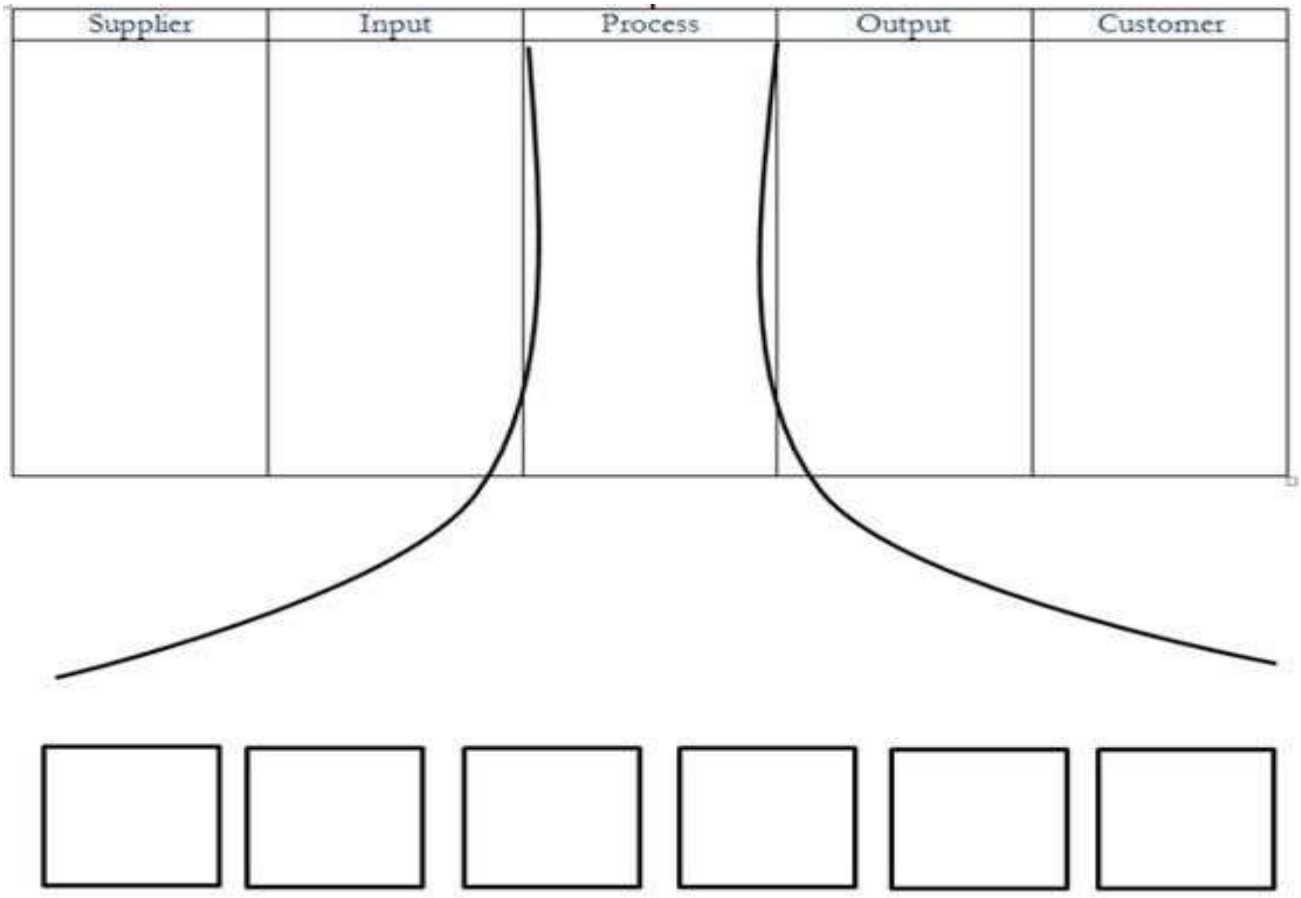


ACTIVITY: Process Map Chocolate Chip Cookies (Slide 2.16)

ACTIVITY: Process Map DOP (Slides 2.17-2.18)

Instructions:

1. Start with your SIPOC



2. One person at a time will facilitate. Date and title your map. Indicate the “Current State”, and the name of the process.

3. Use the Process Mapping Key from your manual during the exercise.

4. When the whole process is mapped, read through the entire process from beginning to end. As you read through it, first the “happy path”. Then, go back and address the ”exceptions”. After the exceptions are addressed, go to the next function.

5. Mark the end of the process with a green dot or green Post-It-Note with a circle on it. g.)

VALUE ADD (VA) (SLIDE 2.20)

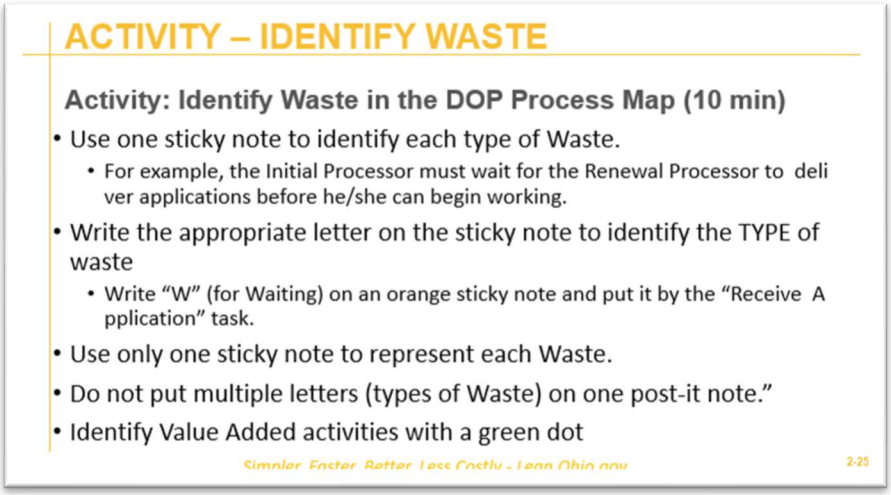
Non-Value Add (NVA) (Slide 2.21)

Non-Value Add (NVAN) (Slide 2.22)

- Customer does not care
- Required by Law or Regulation

TIM U WOOD (Slide 2.23)

ACTIVITY: IDENTIFY WASTE (Slide 2.25)



Debrief (Slide 2.26)

The Eight Wastes – Reference Sheet

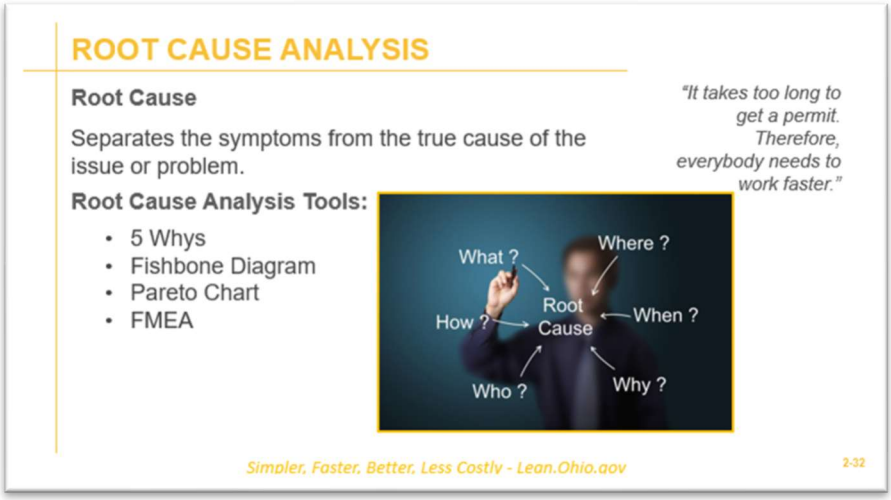
T	Transportation
I	Inventory
M	Movement
U	Underutilization
W	Waiting
O	Over-production
O	Over-processing
D	Defects

INTERPRET A PROCESS MAP (Slide 2.28)

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

Root Cause Analysis (Slide 2.31-2.32)



5 WHYS (SLIDES 2.33-2.45)

Notes:

Why?

Why?

Why?

Why?

Why?

Fishbone Diagram or Ishikawa Diagram or Cause and Effect Diagram (Slides 2.46-2.47)

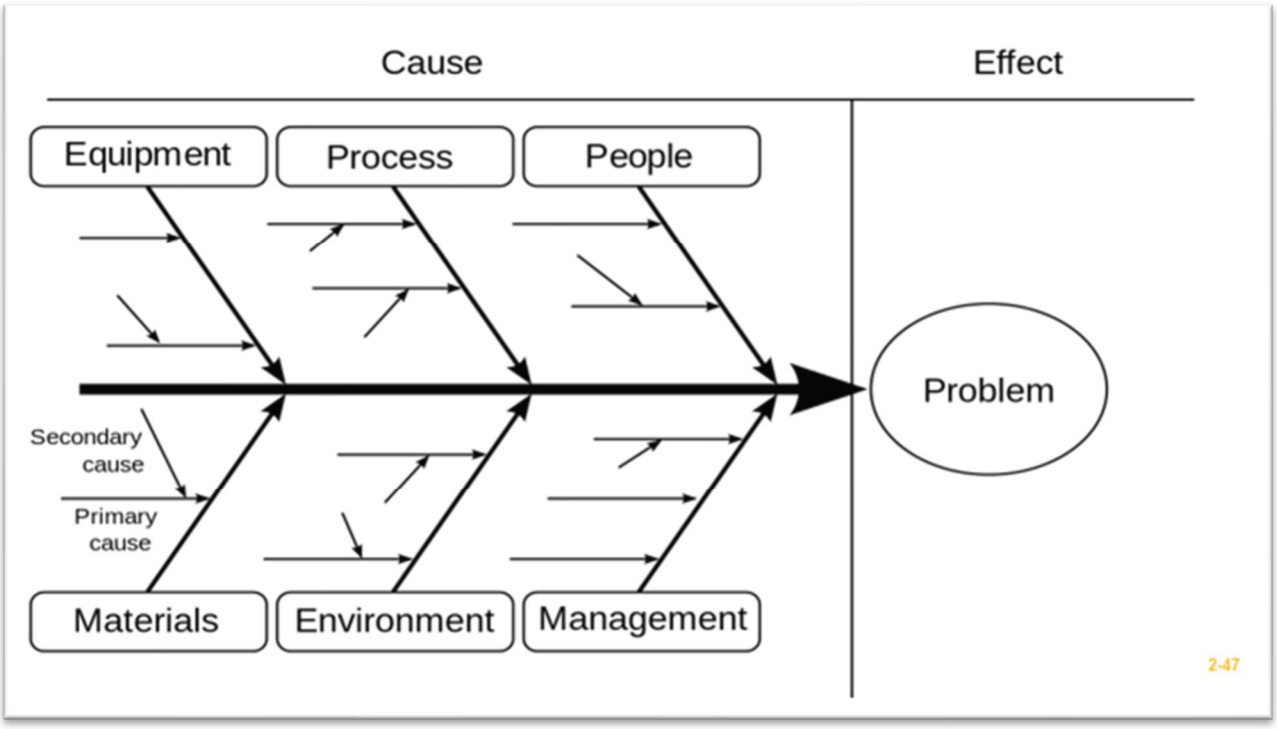
The key to problem solving is finding the root cause. The Cause-and-Effect Diagram, developed by Kaoru Ishikawa in 1982, offers a systematic way to brainstorm the various factors that may be causing a problem.

It prompts people to ask: *Why is this occurring?* As the diagram is developed, more and more potential causes come to light.

This tool is sometimes called a “fishbone diagram” because it takes the shape of a fish.

- The effect (the problem) is the “head” of the fish.
- Leading from this is the “backbone” and connected to this are the “main bones” which represent major categories of causes.

Commonly used categories include: People, Process (or methods), Equipment, Materials and the Environment. These categories are only suggestions; you can use any major categories the team deems appropriate.



MAKING INFORMED DECISIONS

Metrics and Data Collection (Slide 2.49)

We know that data and information are crucial to decision making. They help us clarify whether a problem exists and/or confirm that an opportunity is present. Data helps us to know if we are actually improving in an unbiased, measurable way. So the questions we need to address to help use data to make informed decisions are:

4 Questions to Answer for Informed Decision Making (Slide 2.50)

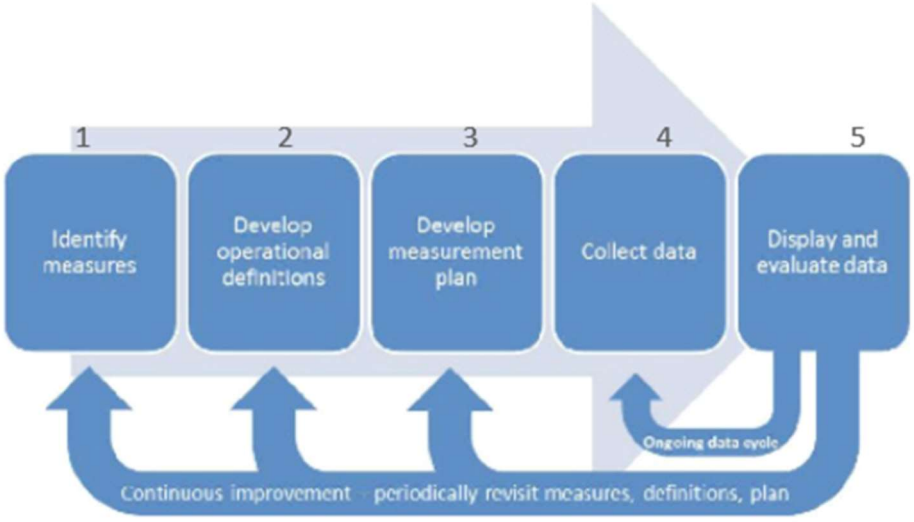
MAKING INFORMED DECISIONS

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?

Simpler, Faster, Better, Less Costly - Lean.Ohio.gov 2-50

Data Collection (Slide 2.51)

DATA COLLECTION



Simpler, Faster, Better, Less Costly - Lean.Ohio.gov 2-51

Data Collection Steps:

1. **Identify Measures:** What data do you need to help you understand the problem or to establish a baseline? What measures will tell you if your improvement is successful?
2. Identify Primary measures and Secondary measures to avoid **sub-optimization.**

3. **Develop Operational Definitions:** An operational definition when applied to data collection, is a clear, concise detailed definition of a measure

4. **Develop a Measurement Plan:** A Measurement Plan defines the process for collecting data - how much, how often, who collects etc.

5. **Collect Data:** Follow your data collection plan. It's expensive to collect data. Do it right the first time.

6. **Display and Analyze Data:** Use charts and graphs to make it understandable

Where do we get the data? (Slide 2.52)

Lean Government Measures (Slide 2.53)

Simpler: Reducing the number of steps and positions. Reducing the number of forms required to get through a process. Reducing red tape.

Faster: Two Lean terms are used to represent speed: Cycle Time and Lead Time.

- **Cycle Time**: the total time from beginning to the end of your process. Cycle time can be thought of as process time, during which a unit is acted upon to bring it closer to an output or touch time.
- **Lead Time:** The amount of time from when the customer requests the product/service, until the time it's delivered.

Better: This reflects the quality of the product. Measures focus on error, rework, and customer perception of quality.

Less Costly: The focus is providing more, better services. Cost savings can be realized through reducing the need for hiring additional employees or reducing overtime. Hard Cost savings can be realized in the areas of: copying, postage, supplies, travel, expenses, and storage.

Operational Definitions (Slide 2.54)

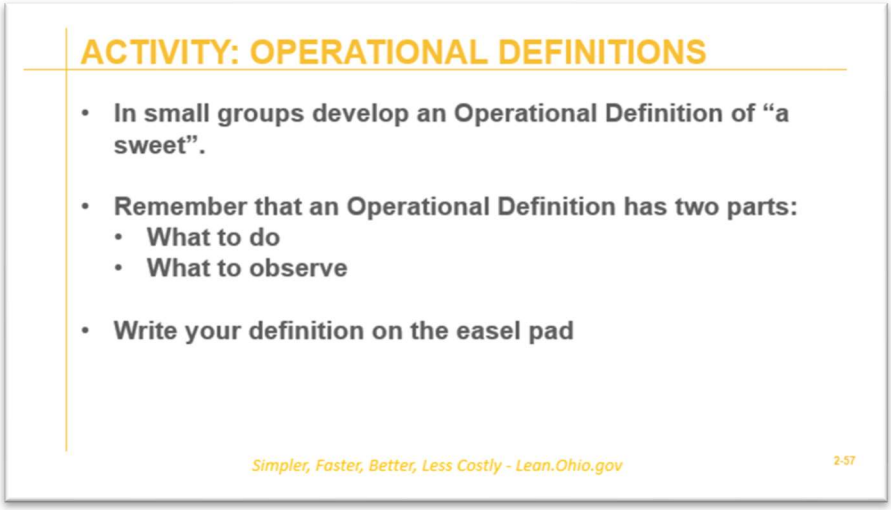
An operational definition, when applied to data collection, is a clear, concise detailed definition of a measure

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 it data will usually be inconsistent or wrong
- Should be documented, standardized, accessible and tested routinely

ACTIVITY: Operational Definitions (Slide 2.57)



Data Collection Plan (Slide 2.62)

A Measurement Plan defines the process for collecting data. When formulating your measurement plan, ask yourself the following questions:

- How often do you want the data?
- What will the data be used for?
- Do we analyze all relevant data or a sample?
- What tools are necessary to collect the data?
- What logistical issues are relevant?
- "In what format should the data be gathered and displayed?"

You should test your measurement plan and train data collectors

Data Collection Plan Example:

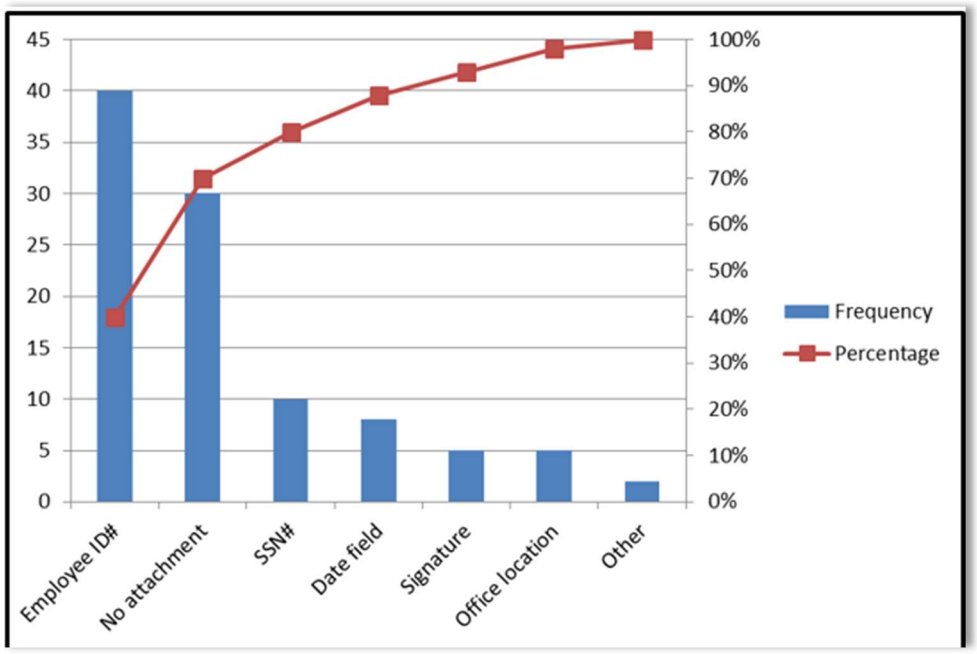
Measure	Operational Definition	Data source and location	Sample Size	Who will collect data	When collected	How collected	Other data to collect at same time
Time to process application	Email date, time Decision email date, time	Applications for XYZ	289	Joe Smith Tim Mann	During the first 2 weeks of the 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

How will the data be used?	How will the data be displayed?
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 (Example) (Slide 2.63)

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

Display (and Evaluate) Data (Slide 2.64)



Data can be overwhelming; therefore, it is important to display the information in a simple way. The charts, tables, or graphs should be self-explanatory.

The visual should allow the viewer to quickly determine the status. It should be clear: "Are we better or worse over time? Are we meeting our goals or not? Of all errors, which are the most common?"

Pareto Charts

The Pareto chart is a graphic tool that demonstrates the Pareto Principle or the 80/20 Rule. It generalizes that the majority of the problems come from a relatively small percentage of Inputs in your process. It is extremely useful for analyzing what problems need attention.

It is a bar chart organized by frequency. The greatest frequency (or taller bars) are located on the left and move down to the right. The chart illustrates which variables have the greatest effect on a given process.

The implication is that if you address a few of the causes (or 20% of inputs causing the problem), you can fix the majority (80%) of the problem.

What metrics should you use? (Slide 2.65)

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

ACTIVITY: Data Collection (Slide 2.66)

In your DOP Groups

- Review DOP forms (1 set per team)
- Identify Measures (Use the Data Collection Plan on the next page)
- Collect Data (Using information from DOP Simulation on Day 1)
- Fill out data collection form (on easel paper)
- Create Visual Representation (bar chart, pie chart, etc.) of Data (on easel paper)

Be sure to answer the following:

1. What should we measure to understand the process? Where are the problem areas?
2. What measures will let us to know when we are successful?
3. What metrics should you use?

Examine the above questions in the context of the 4 Voices.

DOP 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

How will the data be used?	How will the data be displayed?

DATA COLLECTION TEMPLATE

[TITLE]						
MEASURE	**SERIES 1**	**SERIES 2**	**SERIES 3**	**SERIES 4**	**SERIES 5**	**TOTAL**

INDIVIDUAL PROJECT METRICS

Measure	Operational Definition	Data source and location	Sample Size	Who will collect data	When collected	How collected	Other data to collect at same time

How will the data be used?	How will the data be displayed?

5S + SAFETY

VIDEO: 5S + SAFETY (SLIDE 2.70)

VIDEO:
State of Ohio 5S

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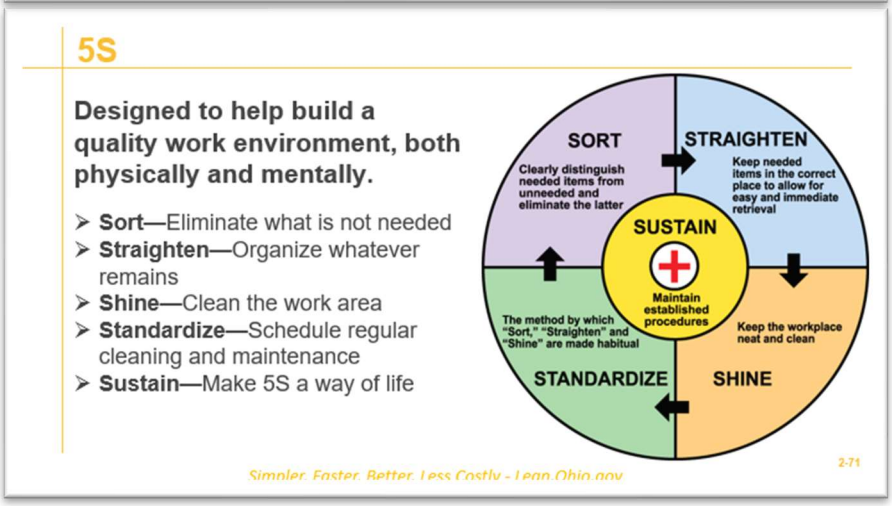
5S (Slide 2.71)

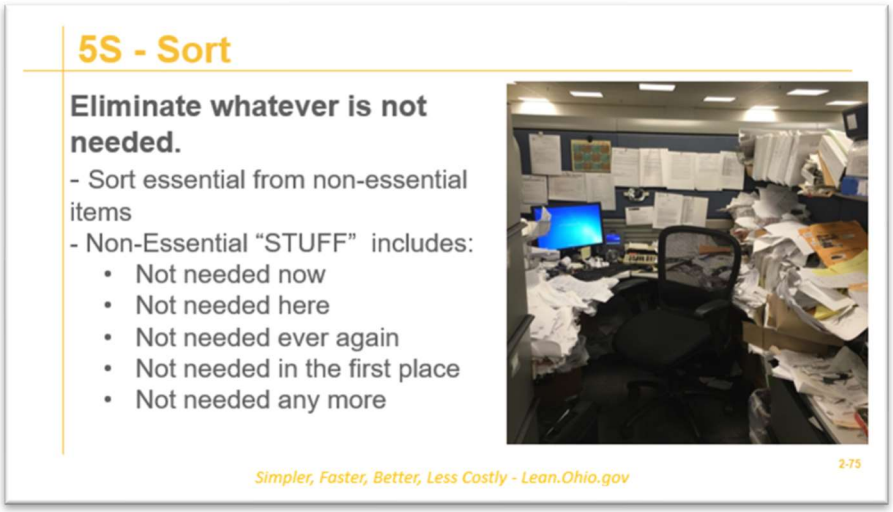


5S (Slide 2.72)

Why 5S (Slide 2.73)

- Heightened efficiency overall in the workplace
- More economically efficient - monetary savings
- Greater organization that is lasting
- Cleaner spaces with no clutter
- Greater prioritization of products and services
- Work spaces are more visually appealing
- Equipment (consolidation) close to production which increases efficiency
- Smoother flow of procedures

5S Sort (Slide 2.74)



5S Straighten (Slide 2.78)

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

Simpler, Faster, Better, Less Costly - Lean.Ohio.gov 2-79

5S Shine (Slide 2.82)

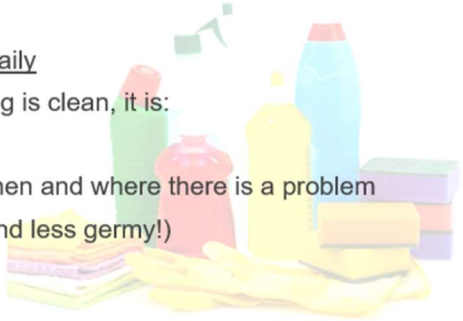
5S - Shine

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 distracting (and less germy!)



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5S Standardize (Slide 2.83)

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**

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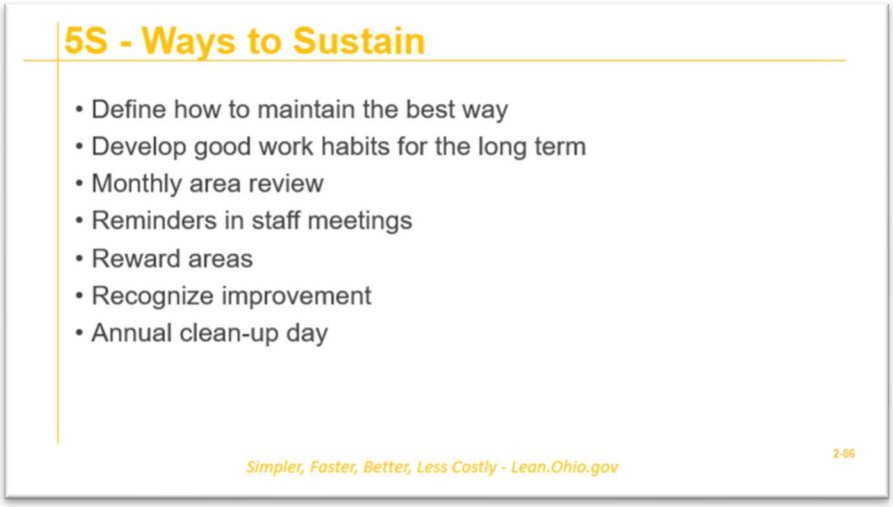
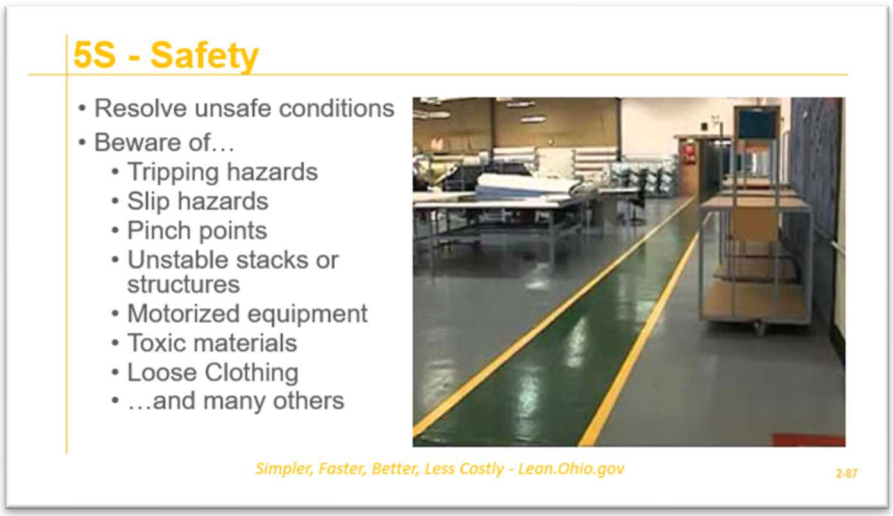
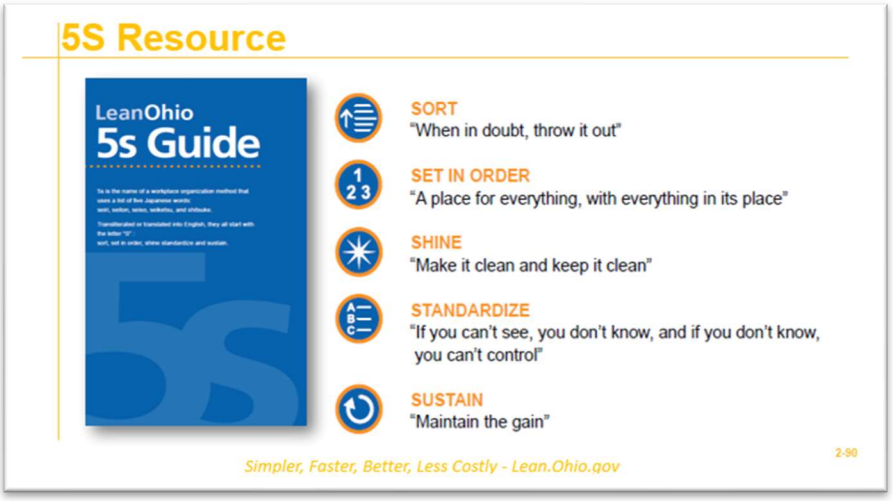
5S Sustain (Slide 2.85)



5S Safety (Slide 2.86)



5S Guide (Slide 2.89)



https://lean.ohio.gov/Portals/0/docs/tools/5S_Guide.pdf

ACTIVITY: 5S in Your Workplace (Slide 2.91)

- Split into groups of three or four
- Brainstorm how 5S can be applied to your daily virtual work processes.
- Write down your idea(s)
- Be prepared to present to the group

IMPROVEMENT TEAMS AND TEAM DYNAMICS

Team Definition (Slide 2.91)

A team is a group of people working together towards a common _____.

Ideal size is_____to_____members.

Obtaining Team Members (Slide 2.93)

- 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 (Slide 2.94)

- Clear and Common Goals
- Defined Roles
- Clear Agreed Upon Processes
- Understanding Interpersonal Relationships

Roles and Responsibilities (Slides 2.95-2.99)

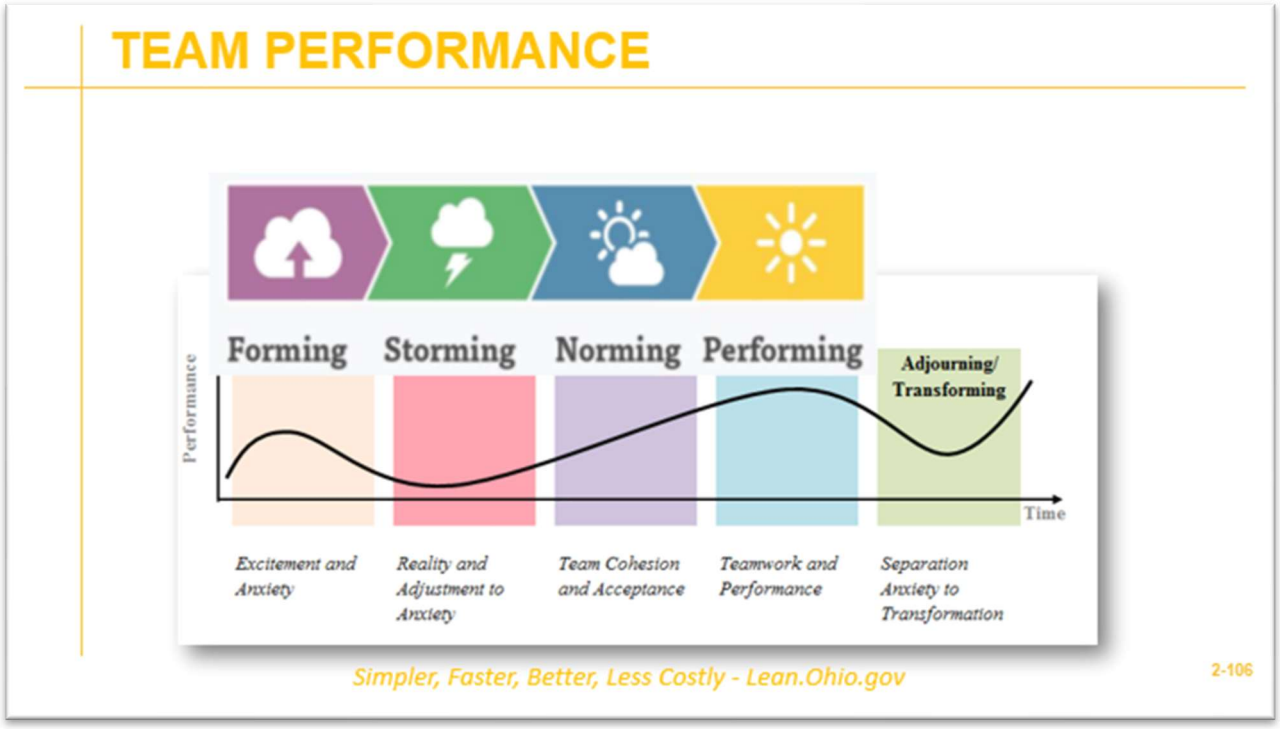
Team Members	Role Definition
	Manages the Project and the Team, is primary point of contact for the team, keeps records
	People who do the work or supervise the work from all parts of the process
	The team member who is responsible for seeing that the project gets implemented
	A “part-time” member of the team called upon for specific expertise
	Someone in Leadership who has the ultimate authority to implement changes, provide resources and remove barriers.
	An outside neutral person who provides process and tools expertise
	An outside person who is a full team member but knows nothing about the process being improved
	The recipient of the product or service being improved

Do you need a facilitator? (Slide 2.100)

TEAM DYNAMICS (Slides 2.102-2.106)

VIDEO: More Cowbell!

Team Performance (Slide 2.104)



Successful team tips (Slide 2.105)

- Ground rules
- Clear team goals
- Improvement plan
- Defined roles
- Clear communication
- Respectful team behavior
- Equal participation

Team procedures (Slide 2.106)

- Meeting Ground Rules
- Meeting Management
- Decision-making protocols
- Problem-solving protocols
- Communication protocols

Meeting Management: Agendas (Slide 2.107)

Sample

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

Meeting Management: Minutes (Slide 2.108)

Template

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

DAY THREE
ANALYZE AND IMPROVE

LEAN Ohio Boot Camp

DAY THREE

Focus

Today we will focus “Analyzing and Improving”. We began on Day 1 with SIPOC and identifying a real world problem. On Day 2 we focused on “Making the Invisible Visible” with Gemba, Process Mapping, and data. Today we’ll cover a number of improvement tools.

What Day Three Will Cover:

- Poka Yoke, Pareto Diagram
- Batching vs. Continuous Flow
- Push - Pull
- Standardized Work
- Kanban
- Brainstorming/ Affinity Diagram /Impact Control Matrix
- Clean Sheet Redesign

Poka Yoke

Poka Yoke (Slide 3.7)

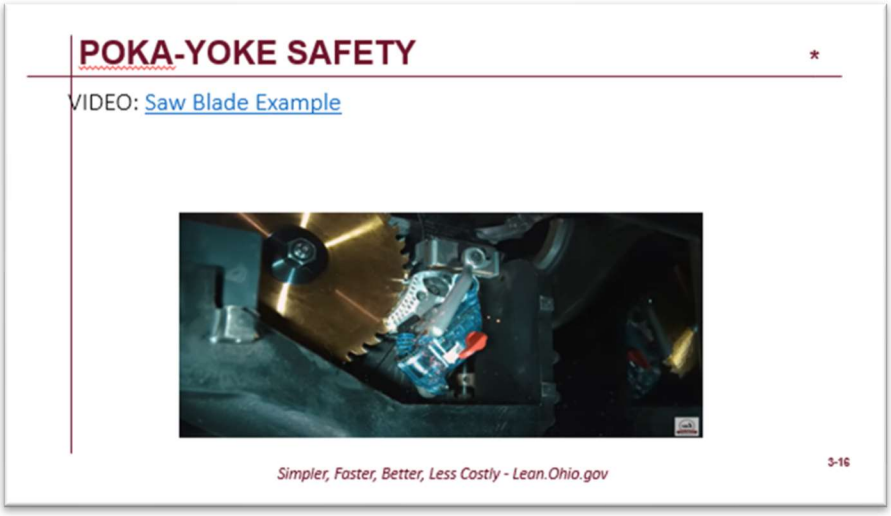
Poka Yoke is a Japanese term for “mistake proof”. Applying this term to Lean, this means preventing mistakes/errors.

The step that causes the error is eliminated and replaced by a step that is error-proof. If you cannot make it impossible for the error to occur, devise ways to detect the error early and minimize its effects.

What are some examples of Poka Yoke?

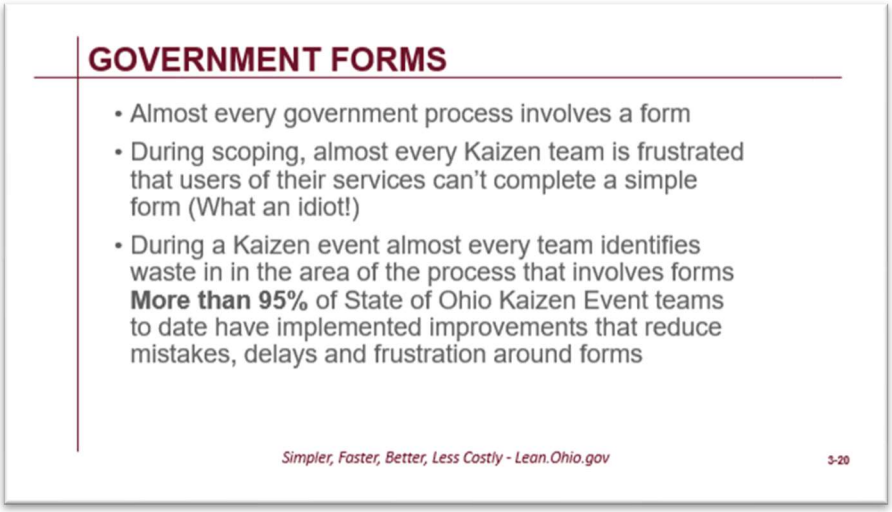
VIDEO: Poka Yoke Safety (Slide 3.14)

Poka Yoke is an important approach to safety issues. Let’s look at this example.



Poka Yoke Forms (Slide 3.16)

In government, forms and processes are the most common targets for Poka Yoke.



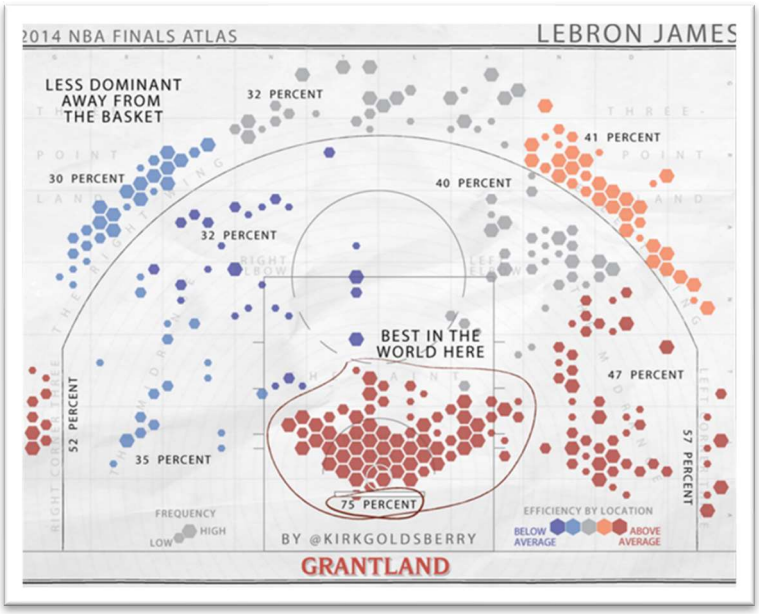
How to Poka Yoke a Form (Slides 3.17)

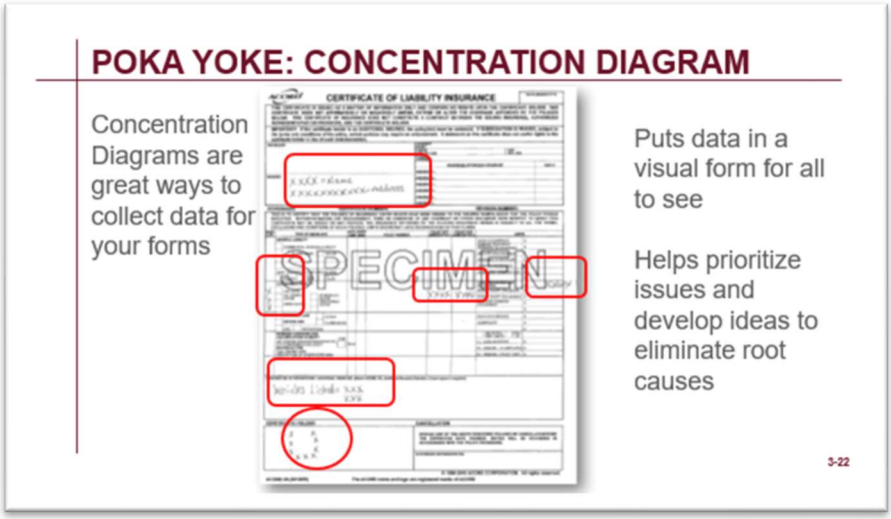
Use DATA for Mistake- Proofing Forms:

- 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

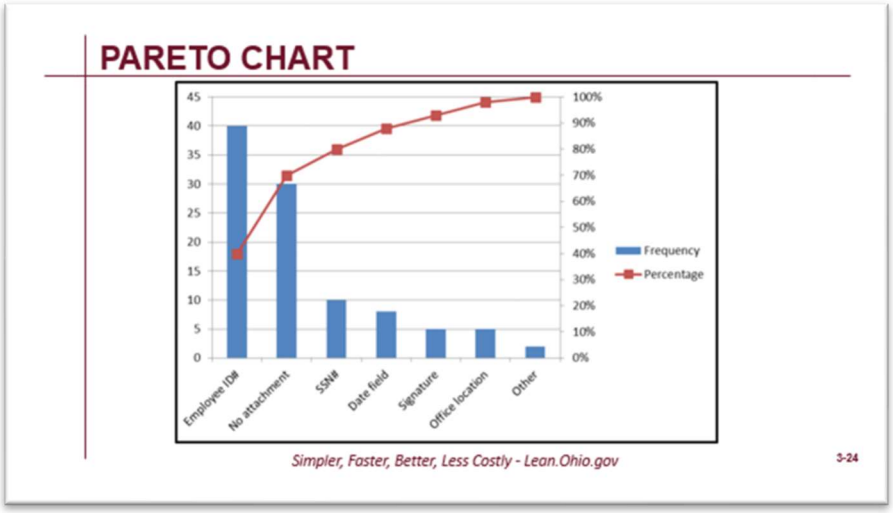
Some things you can do to with the data:

Concentration Diagrams: (Slides 3.18-19)





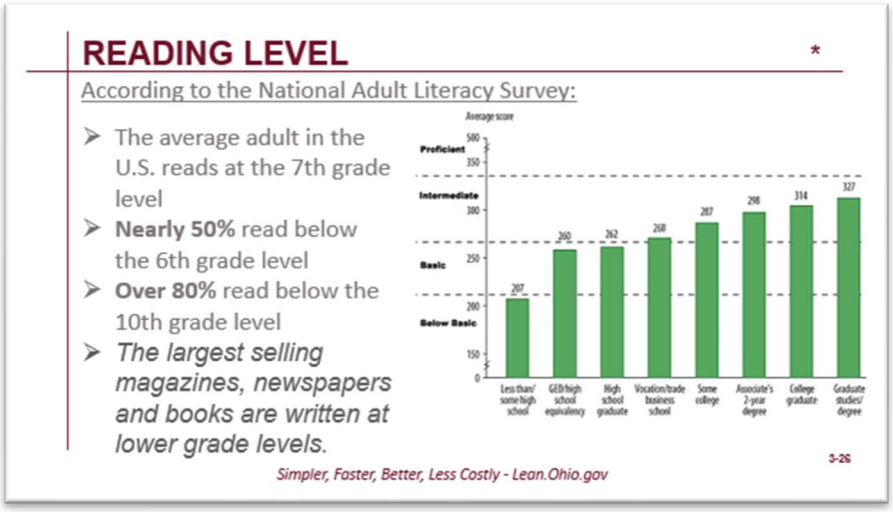
Pareto Chart



Poka Yoke: Reading Levels (Slides 3.22-3.24)

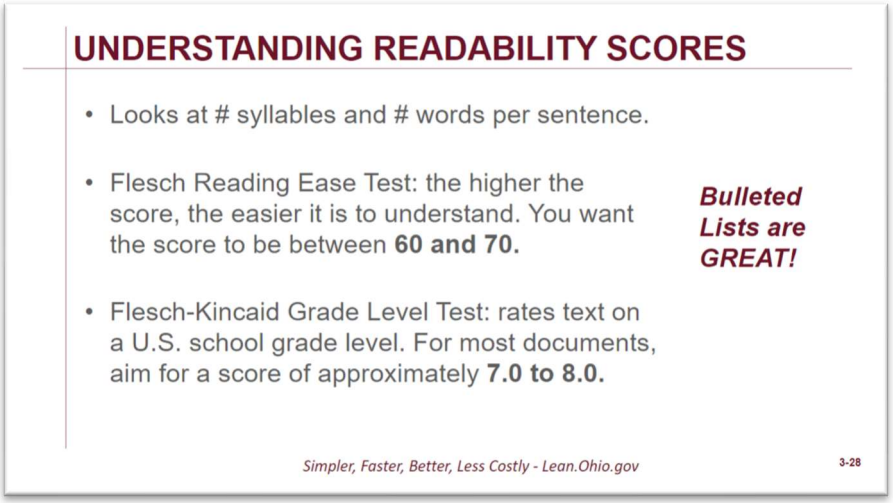
While the New York Times is written to a X grade level and John Grisham and Stephen King write to a X grade level, most government forms are written at a X level.

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. What does that mean for us in government?



If you are using Microsoft Word, you can see the Flesh Kincaid reading level.

1. Highlight the text that you would like analyzed.
2. Click the 'File' button.
3. From the bottom of the menu that appears, select 'Options'.
4. After that select “Proofing” option and
5. Under the heading “When correcting spelling in Grammar and **Word**”, check **Readability Statistics** option.



The action will enable the Flesch-Kincaid scale.

Poka Yoke: Other Mistake Proofing and Form Improvement Ideas (Slides 3.26)

Mistake Proofing Techniques

Forced Control - User cannot make an error

- Railroad Overpasses
- Calendar Selection for date field.

Shutdown – Process stops when error detected

- Sawblade

Warning - Alert of possible error or problem

- Spell Check

Sensory Alert - Visual, sound, smell, or feel to signal potential error
Nothing happens, it’s just a cue

- Natural gas odor
- Rumble strips

Form Improvement Ideas (Slide 3.27)

- 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

ACTIVITY: POKE YOKE THE DOP FORM

- Tally the data and identify the numbers of errors and types of errors being made on the form.
- Prioritize most common errors from concentration diagram
- Consider the root causes of the errors
- Develop Poka-Yoke ideas to prevent future errors
- **On a flip chart page, draft a new form that incorporates those ideas**

Slow Form for Renewal Requests

Date Submitted to DOP:	Agency Name
Department Code:	Agency Reference #
OAKS ID:	Fund:
Account:	ALI:
Program:	Shipping Code:
Send to:	
Bill to:	
Approval Date Requested:	
Phone Number:	Fax Number
Name of Contact person:	
Email:	

Additional Information	
Date of Request	
Improvement Initiative Title	
Nature of Request	
Number of times renewed	
Audit Plan	
Budget Plan	
Total Cost	
Form Type	

Supervisor Signature	
Title	
Date	

Director Signature	
Title	
Date	

Batching vs. Continuous Flow

Batching (Slide 3.33)

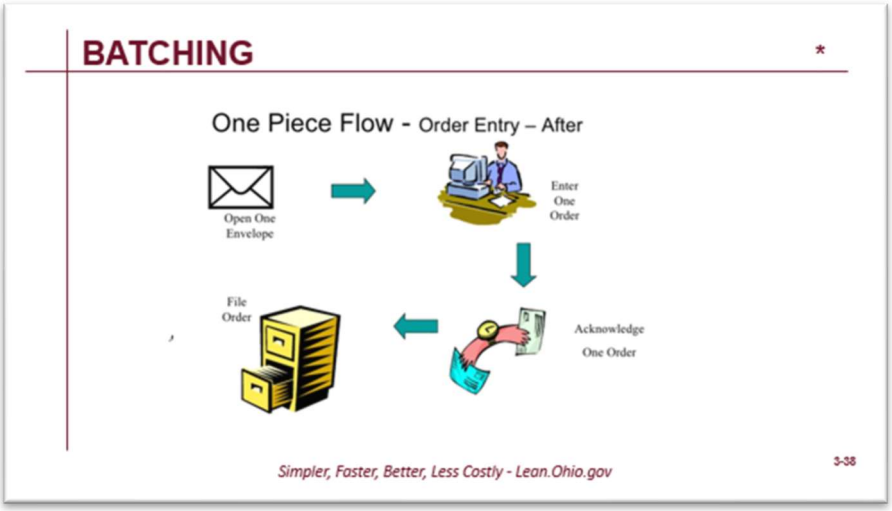
A Volume Produced at One Time

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

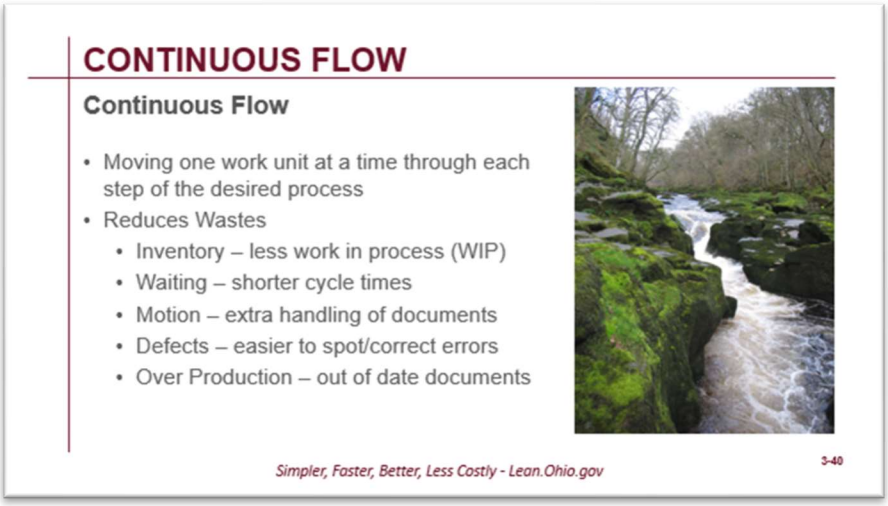


ACTIVITY: Sticky Note Signing

- Team1 – write your name on <u>one</u> and pass
- Team2 – write your name on <u>all</u> and pass

Continuous Flow (Slide 3.37)

Continuous Flow is moving one work unit at a time through each step of the process. When implemented correctly, continuous flow processing:



- 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

It also:

- Saves money by:
  - Reducing inventory and transportation costs
  - Cuts down on overhead via increased stability and reduced lead times
- Increases productivity – more units completed in less time
- Improves quality by making it easier to spot and correct errors
- Adapts to customer needs more effectively than batch processing

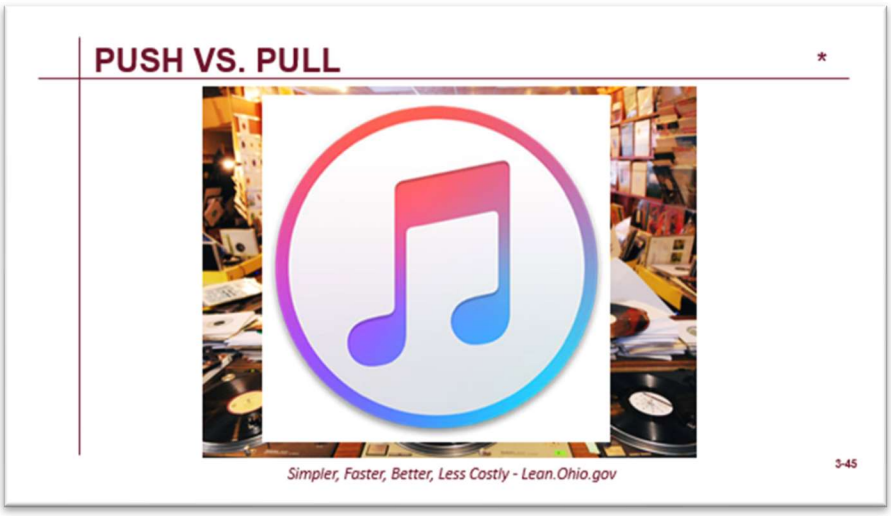
FLOW: FIFO (FIRST-IN, FIRST-OUT) (Slide 3.38)

Push-Pull (Slides 3.39-3.43)

Push – Pull systems illustrate two forms of service delivery processes.

A push system where we produce a bunch of something and "push" it out to customers versus a readily available/on-demand (pull) system.

In a pull system the product or service is triggered by the customer's needs and actions. A pull system decreases overhead, eliminates unnecessary inventory and improves production.



<u>Rules of a Pull System:</u>

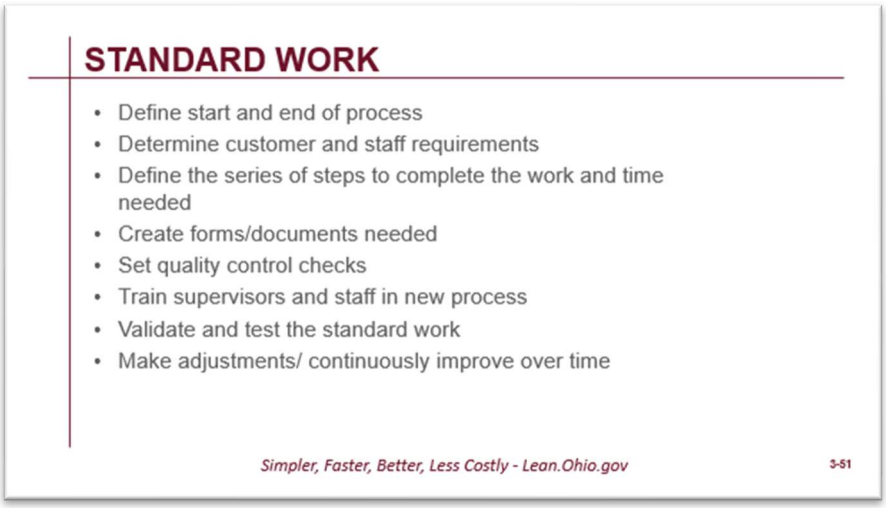
- Supplies replace what customers have consumed, nothing more
- Customers only pulls what s/he consumes, nothing more
- Stocks are maintained at their minimum levels

<u>Advantages of a Pull System:</u>

- Reduces waste by eliminating overproduction
- Saves money by reducing inventory, managing storage and transportation costs
- Changes sales need by allowing the customer to purchase "on demand"
- Adapts to customer needs more effectively and improves responsivity to change requests
- Improves production and one (1) piece flow process

Standard Work (Slides 3.44-3.50)

Standard Work



Standard Work refers to combining the elements of a job in the most effective sequence possible without waste. It defines the resources, steps, and time required to provide a service to the customer and is the baseline for continuous improvement. As the standard is improved, the new standard becomes the baseline for further improvements, and so on.

Standard Work is composed of:

- The steps required to provide the product or service to the customer
- The sequence or order in which elements need to be executed to produce the product
- The expected time to complete the steps based on the lowest repeatable time observed to complete elements in the defined sequence
- The quality criteria

Benefits of Standard Work:

- Reduces variability
- Ensure easier and consistent training
- Helps maintain and improve quality
- Enables consistent product and service delivery to customers
- Increases efficiency by using the minimum amount of people, space and materials
- Provides a baseline for improvement activities
- Reduces inspection, reviews and rework

Standard work is also referred to as **standardization.**

STANDARD WORK

CardinalHealth

Standard Operation Sheet

Document Control Number:	xxxx-123	
Created By	Created Date	Revised Date

Process Name:	Stuffing Envelopes
Department:	input field
Posting Location	input field

Approvals	Shift	Supv	Mgr
	1st		
	2nd		
	3rd		

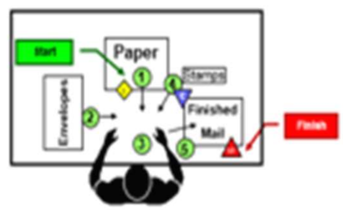
Process Owner	
Storage Location	input field

10	10		

Repeatable Steps

Step No.	Elements of Operation *(brief description)*	Cycle Time (Sec)
1	**Fold:** Get 1 paper & fold into thirds. X10	93.2
2	**Stuff:** Get 1 envelope & stuff folded paper. X10	76.9
3	**Seal:** Simulate sealing 1 envelope. X10	37.3
4	**Stamp:** Get 1 stamp & place on envelope. X10	53.5
5	**Finish:** Place envelope aside. X10	0.0

Standard Work Visual / Diagram Area:

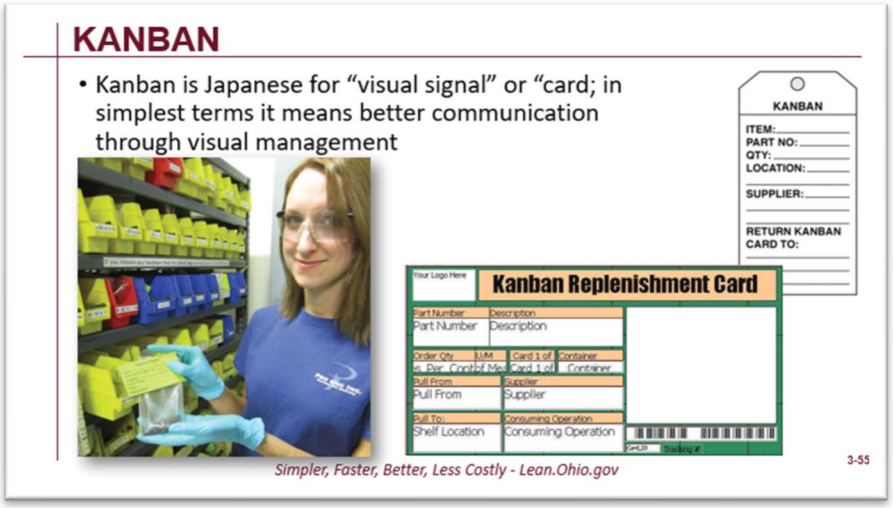


JOB BREAKDOWN SHEET		
Date:	Team Leader:	Supervisor:
Area:	JOB:	Written By:
Major Steps	**Key Points:** **Safety:** Injury avoidance, ergonomics, danger points **Quality:** Defect avoidance, check points, standards **Technique:** Efficient movement, special method **Cost:** Proper use of materials	**Reasons for Key Points**
Step #1		
Step #2		
Step #3		
Step #4		
Step #5		
Step #6		

Kanban (Slides 3.51-3.57)

Kanban

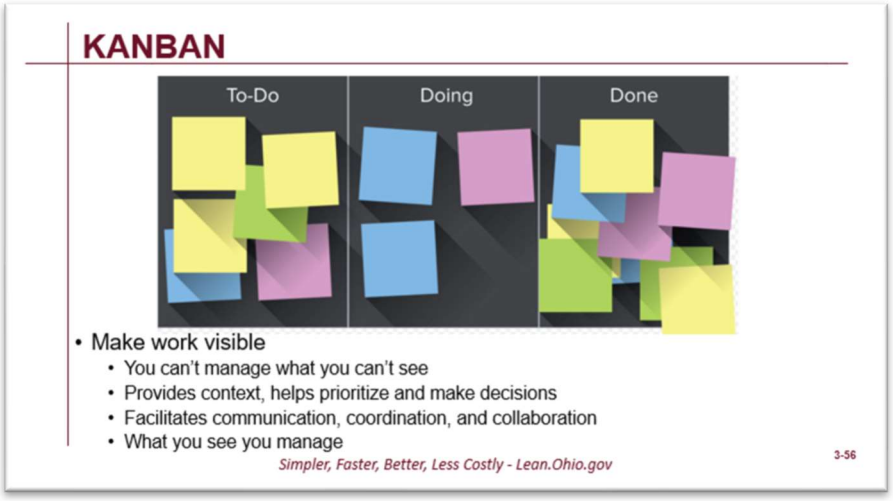
Kanban is a Japanese term for visual signal or card - one of the primary tools of a just-in-time system. It is an indicator of something ready to work on. It maintains an orderly and efficient flow of materials throughout the entire process. It is commonly used as an indicator for re-ordering of stock and is often a printed card that contains specific information such as part name, description and quantity.



Kanban is also used as a method of visually planning and managing daily work.

Kanban has 2 important rules:

1. Make work visible: You can't manage what you can't see. Visuals communicate more, faster. Visuals provide context. They help prioritize and make decisions. The visuals also help facilitate communication, coordination, and collaboration.



2. Limit work in process: Increases efficiency (Research shows that multi-tasking is inefficient). Less is more. Limiting work in process improves quality and reduces errors, reduces stress, and facilitates learning (process, integrate, improve).

Kanban Benefits

- Productivity: getting more done

  We get more done by limiting our WIP
- Efficiency: doing it with less effort

  By focusing on our visuals we expend less effort
- Effectiveness: getting the right things done

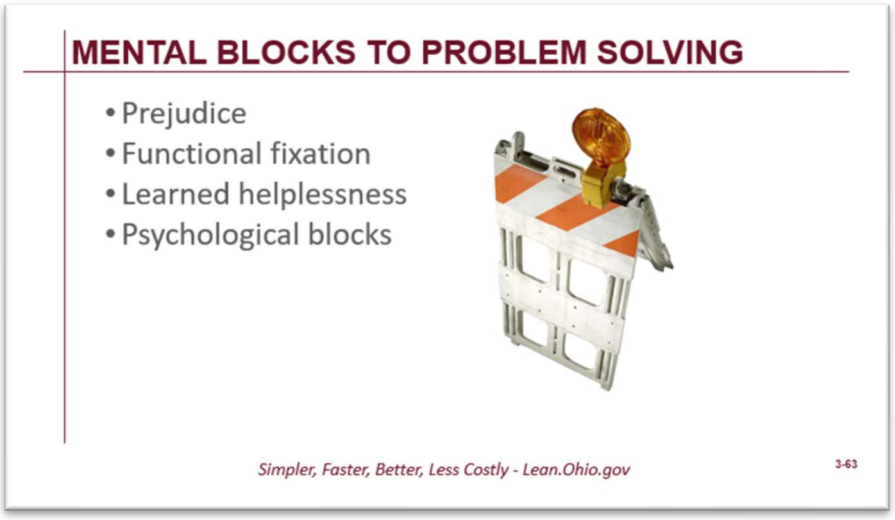
  By making informed decisions with pull, we get the right work done at the right time

Solution Finding: Brainstorming (Slides 3.58-79)

Brainstorming

Brainstorming is an interactive activity that gives the team an opportunity to generate and harvest ideas. The ideas can be defining the problem, coming up with solutions, or a combination of the two. The best possible results often occur by combining all resources available.

Brainstorming helps Lean practitioners sort out ideas so they can plan ahead while gathering new data. This can accelerate the information-gathering session because each person in the session adds value to the end result.



Another benefit of brainstorming is that no idea is unwanted, and all inputs are welcome. This can lead to people contributing in more valuable ways than they would have if their feedback and ideas are solicited by survey or focus group, etc.

Rules for Brainstorming

1. Set Directions
2. Stay Focused
3. Involve Everyone
4. Brainstorm “Without Boarders”
5. Check Under Your Nose
6. Cross-Fertilize
7. Suspend Judgement
8. Allow Repeats
9. Don’t Discuss
10. Record & Display

Brainstorming Methods

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

SILENT BRAINSTORMING

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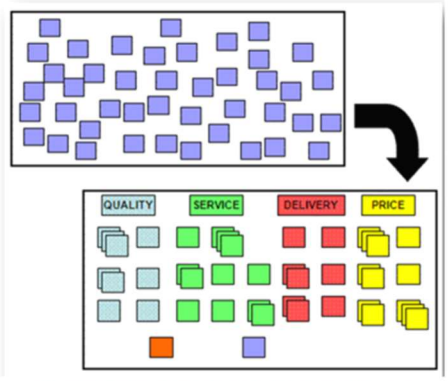
AFFINITY DIAGRAM



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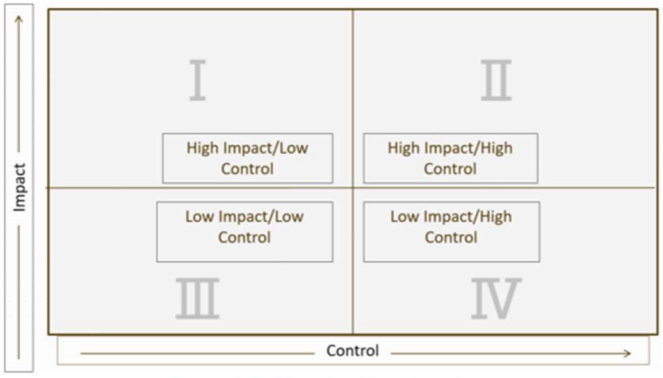
IMPACT CONTROL MATRIX



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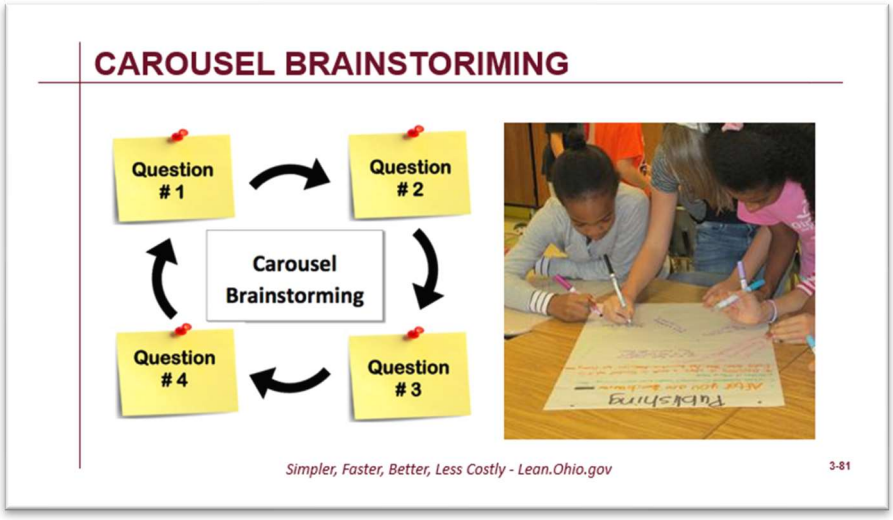


ACTIVITY: BRAINSTORMING DOP IMPROVEMENTS

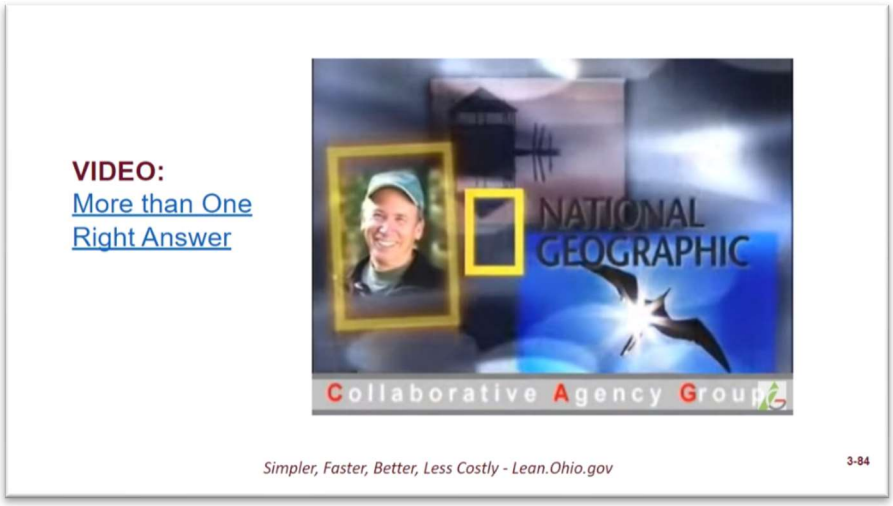
In your DOP Teams,

- Engage in silent brainstorming for approximately 5 minutes
- Using the results of the brainstorming, develop and affinity diagram and impact/control matrix.

Clean Sheet Redesign (Slides 3.80-3.89)

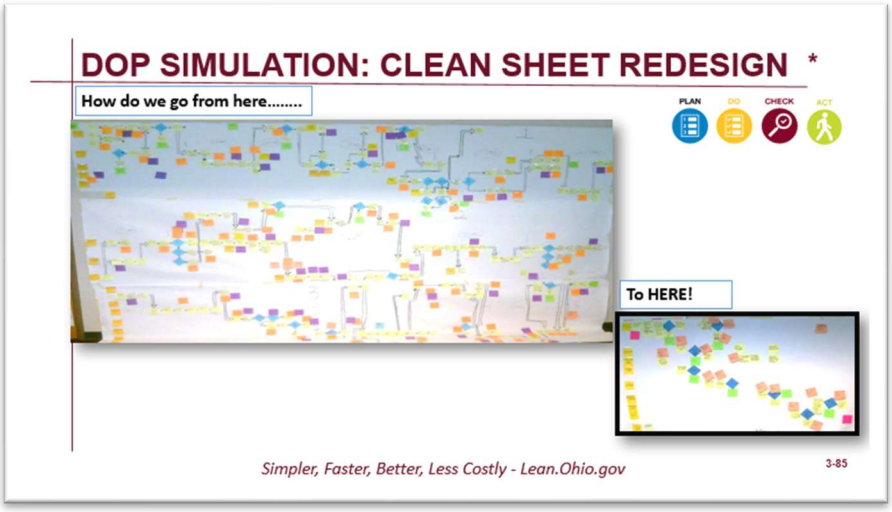
VIDEO: More Than One Right Answer

Award winning photographer for National Geographic, DeWitt Jones discusses how he uses his research for the "best opportunity", different camera lenses, and different vantage points to find more than one right answer.



Clean Sheet Redesign (Slide 3.85)

Clean Sheet Redesign is a technique or step in the improvement process in which the improvement team is asked to develop a draft future process map incorporating the best improvement ideas that have been developed.



To get the best ideas and *more than one right answer* in Kaizens and other large improvement projects, the team is split into smaller groups to each design a new process and then compare their maps for Common and Unique ideas before finalizing their new future state.

Clean Sheet Redesign Goals

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 (Slide 84)

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

Process Redesign Principles (Slide 85)

1. Design around value adding activities
2. Work should be performed where it makes the most sense
3. Provide a single point of contact for customers and suppliers
4. Ensure a continuous flow
5. Reduce waiting, moving and rework time
6. Reduce or eliminate batching
7. Build quality in up front to reduce inspection and rework
8. Reduce checks and reviews
9. Push decision making down to the lowest reasonable level

ACTIVITY: CLEAN SHEET 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
- 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 that must be in the new future state

End of Day Plus/Delta

DAY FOUR
Process Redesign and Implementation

LEAN Ohio Boot Camp

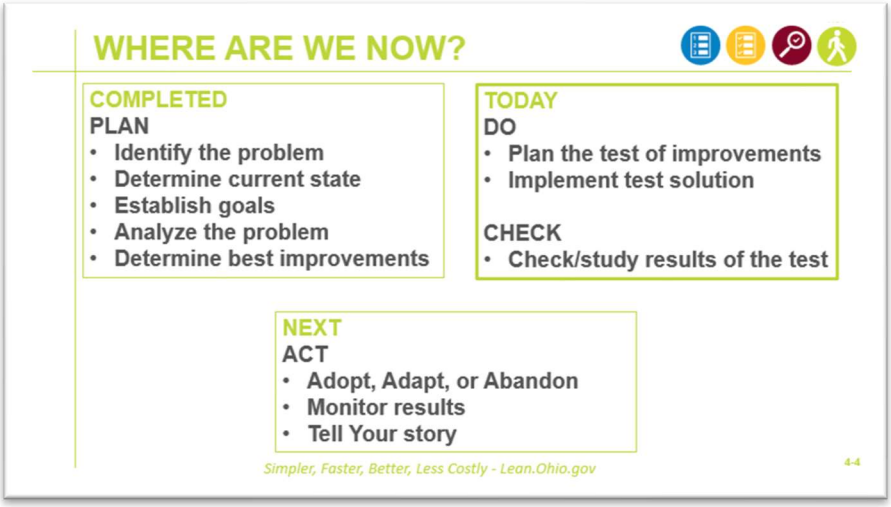
Focus

Once you have analyzed and improved your process, its time to develop metrics and implementation plans. Today's focus will be on making your changes, implementing them and ensuring that the process improvements endure.

What Day 4 Will Cover

- Measures of Success
- Visual Management and Dashboards
- Making the Future State Happen
- Future State DoP Simulation
- Taking Lean Back to Your Workplace
- Embracing Change
- Next Steps

WHERE ARE WE NOW? (Slide 4.4)



GETTING TO THE FUTURE STATE: IMPLEMENTATION PLANNING (Slides 4.5 - 4.11)

Designing the Future State

From Brainstorming and Clean Sheet Redesign, a new Future State has to be defined and mapped, and then implementation must be planned. Starting from the "ideal" future state, plans need to be made for what can happen now and what can happen later. Defining the best process before adding technology is essential.

Implementation Planning

Implementation Planning is critical to assuring the success of the improvement project. Typically the Process Owner is responsible to see that implementation happens. Sometimes a designated Project Manager is needed.

Implementation Pitfalls:

- Having a plan simply for plans sake – putting it on the shelf
- Not having the right people involved

- Unrealistic goals or lack of resources
- Lack of leadership/sponsor support
- No accountability or follow-through
- Unwillingness or inability to change
- Not communicating early and often!

Implementation Planning: Action Registers

An action register is a tool used to break down projects into manageable, coherent pieces. It is where critical tasks, target dates and ownership responsibilities are documented. To create an action register, you have to define the following:

Action registers include:

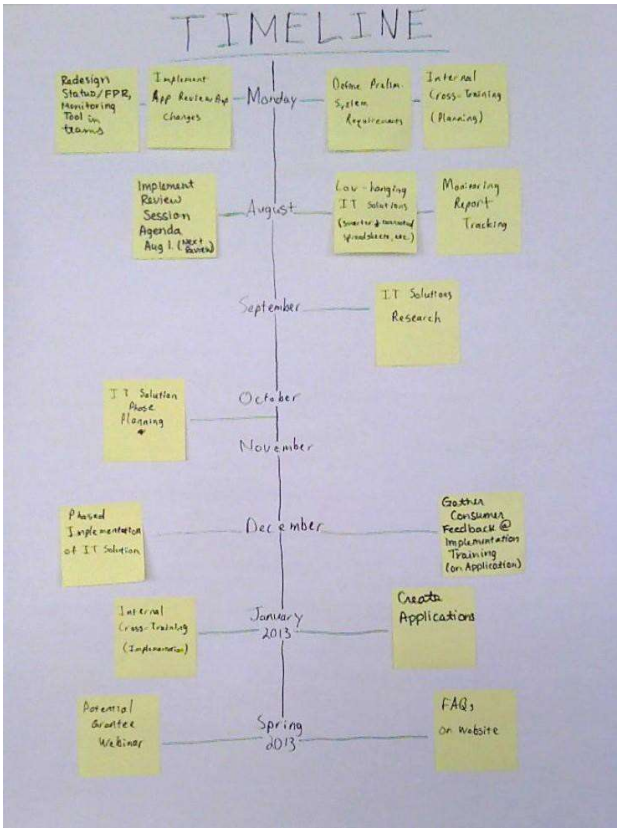
- **What** task or objective needs to be accomplished
- **Who** will take the lead in seeing that the team accomplishes it
- **When** the task will begin and when it will be completed

Action Register Template		
What	Who	When

Timeline Tree

A Timeline tree collects all of the dates and high level tasks from the various action registries and combines it on one central area.

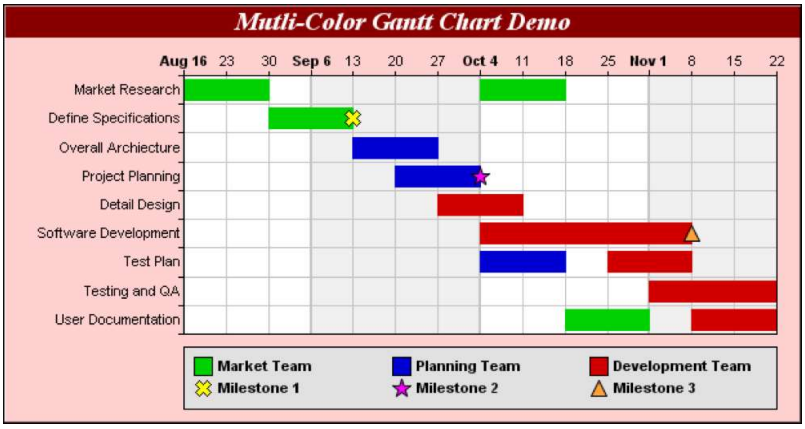
The central axis is the schedule and the activities are added using post-it notes. Post-it notes are utilized for this tool because tasks will often have a timing aspect and need to be placed strategically.



Gantt Chart

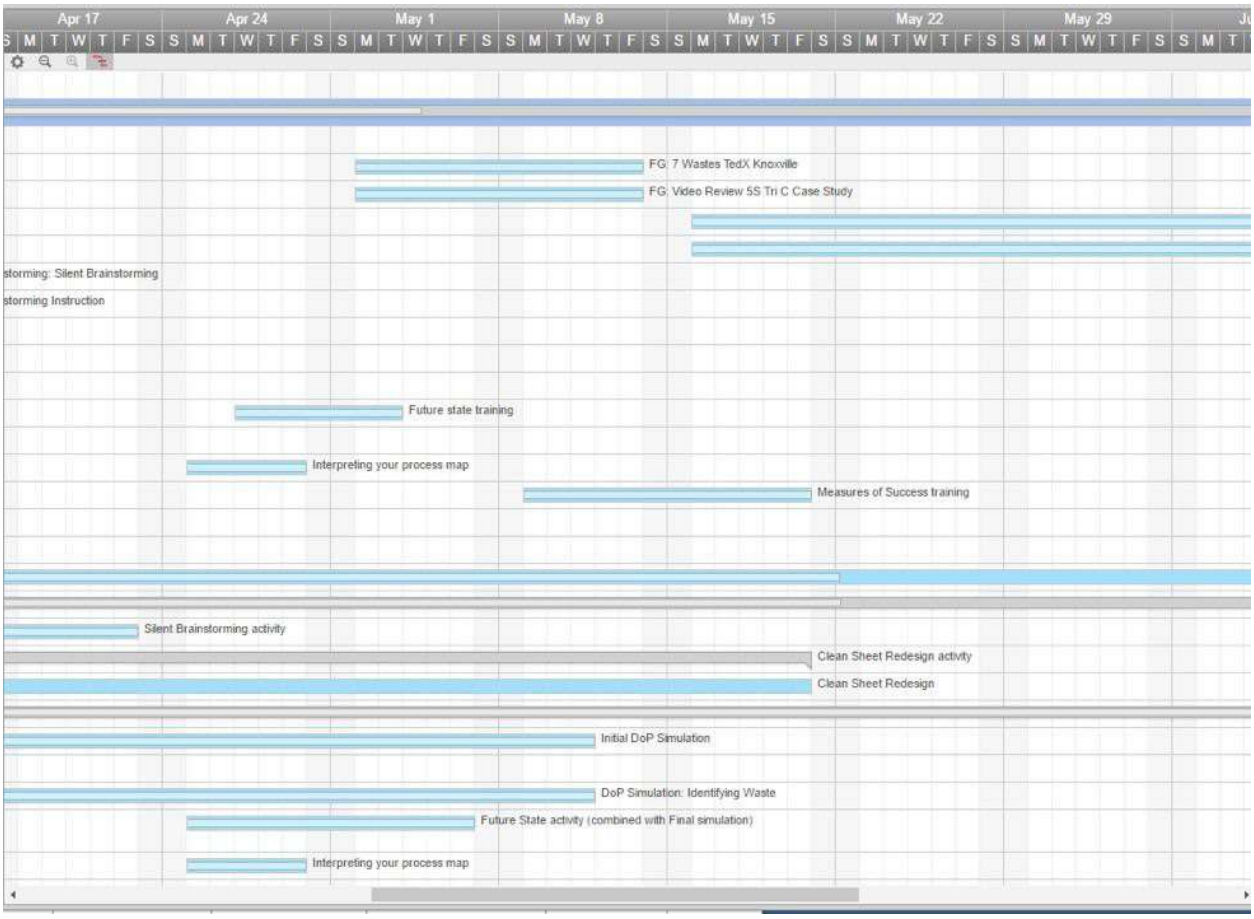
A Gantt chart provides a graphical illustration of a schedule that helps to plan, coordinate, and track specific tasks in a project. It was originally developed as a production control tool in 1917 by Henry L. Gantt.

Gantt charts provide a clear illustration of project status – what tasks have to be done and when, and what has been completed.



It helps to estimate how long tasks will take and shows dependencies.

Gantt charts can be simple tables, excel documents or highly complex developed in Microsoft Project or other project management software.



ACTIVITY: DEVELOPING DOP FUTURE STATE

1. Develop one future state (Build Consensus and Map It!)

    Create a process map of the Future State (without using IT for this simulation) that shows the beginning and end points, functions, tasks, and decisions in the new process.

    The new process must be transformational.

2. Prepare an implementation plan.

    As you plan for your future state, keep in mind the pain points of the original process…how will you prevent these in your next simulation?

    Create any new forms or letters that will be used in processing applications. Keep in mind that there is no IT solution. You cannot use a computer to physically change the layout of the forms.

    Prepare training instructions for the team. This is a Standard Work activity - step by step instructions.

    Design the team's "office space" for the simulation. Think about supplies, work space for each position, location of in and out boxes…you get the idea."

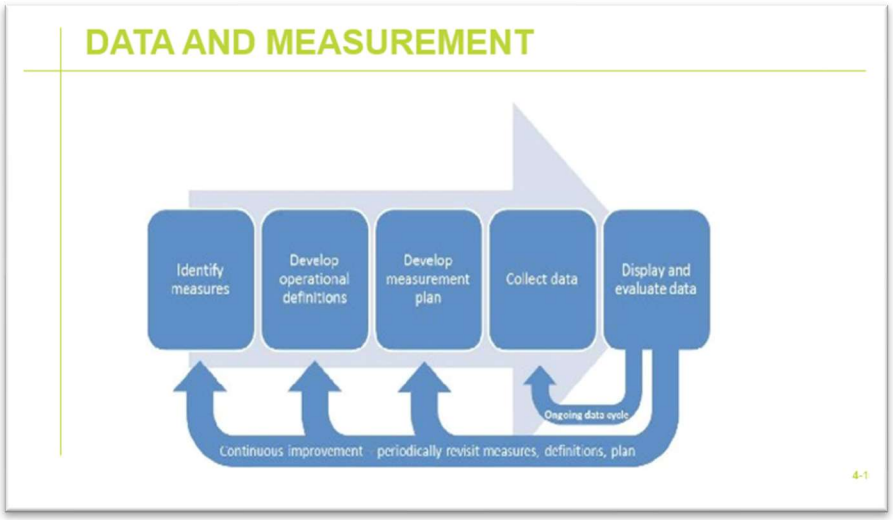
    You may want to do a trial run of your new process. If you do, you cannot mark anything on the applications that indicate that they are approved, denied, or require legal review during this trial run. You may use sticky notes or forms to indicate this."

2. Start your team's A3.

MEASURES OF SUCCESS (Slides 4.12 – 4.25)

Data and Measurement

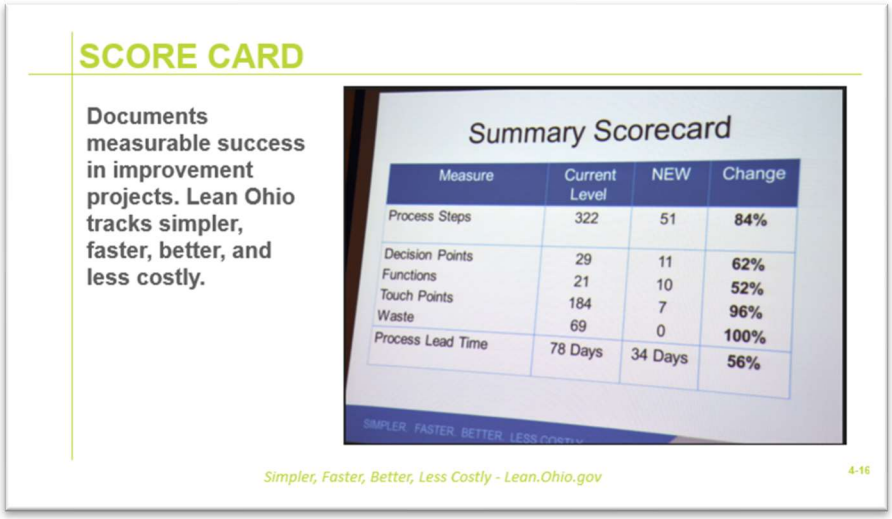
Prior to moving forward with your efforts to improve a process or error-proof forms, you used data and information to confirm there was an issue or opportunity. You also developed measurable goals for your process improvement.



Now, you need to make sure your data collection plan is still valid and ready to go, so you can document changes in your outcomes.

Scorecard

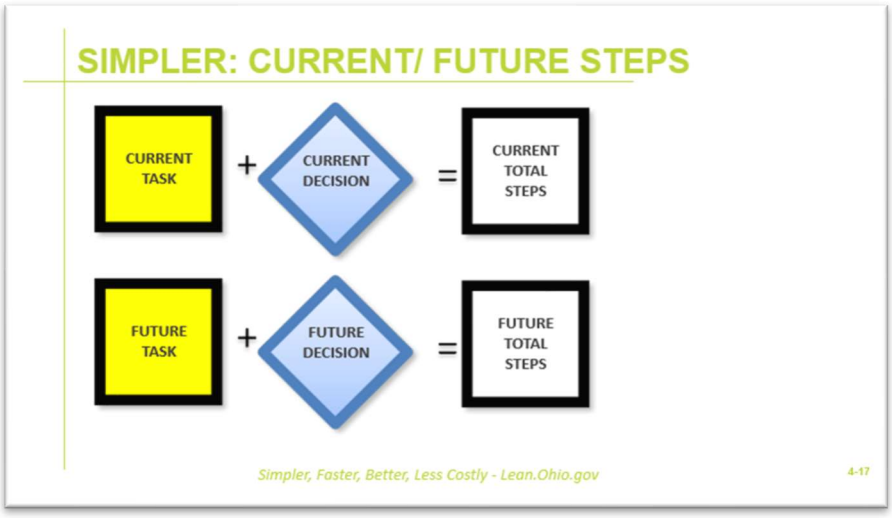
A scorecard is a tool that is used to document improvements made during a project. It is a communication tool to illustrate the success of the project and can help in identifying the metrics that you will track over time to monitor the process and ensure the gains you have made.

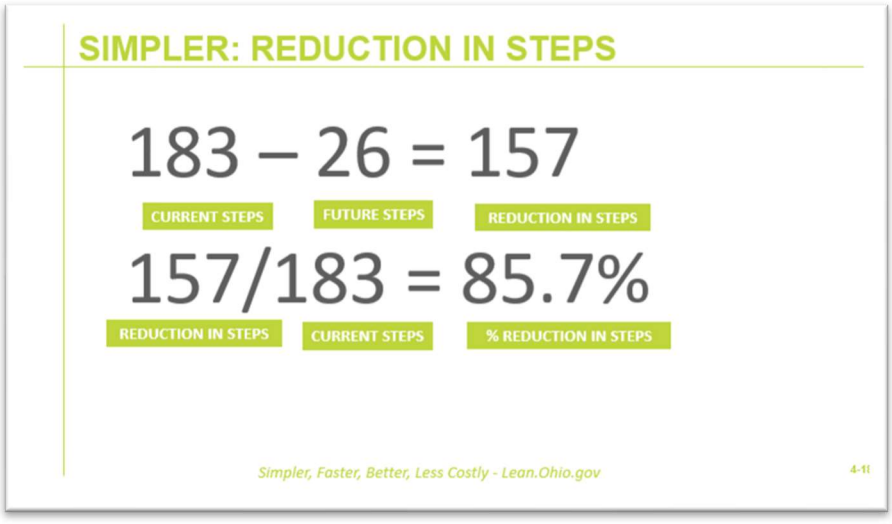


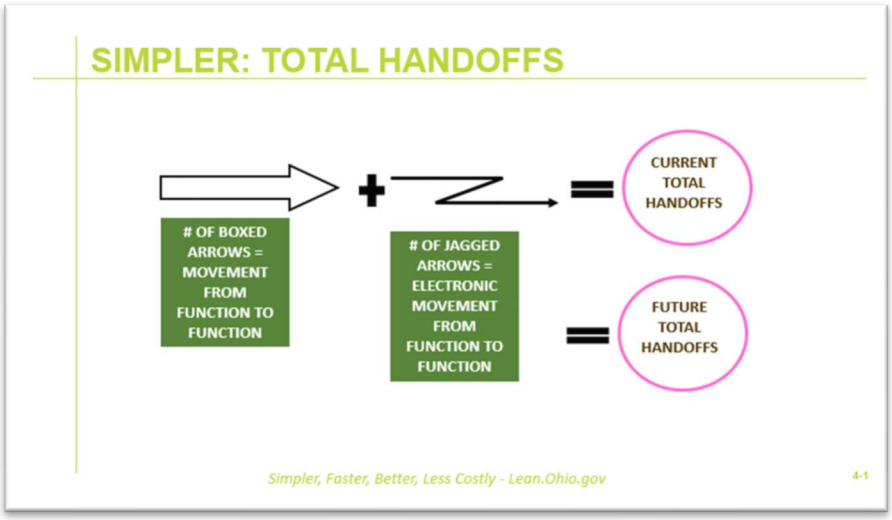
Scorecard measures include:

- **Simpler**
- **Faster**
- **Better**
- **Less costly**

Simpler







FASTER

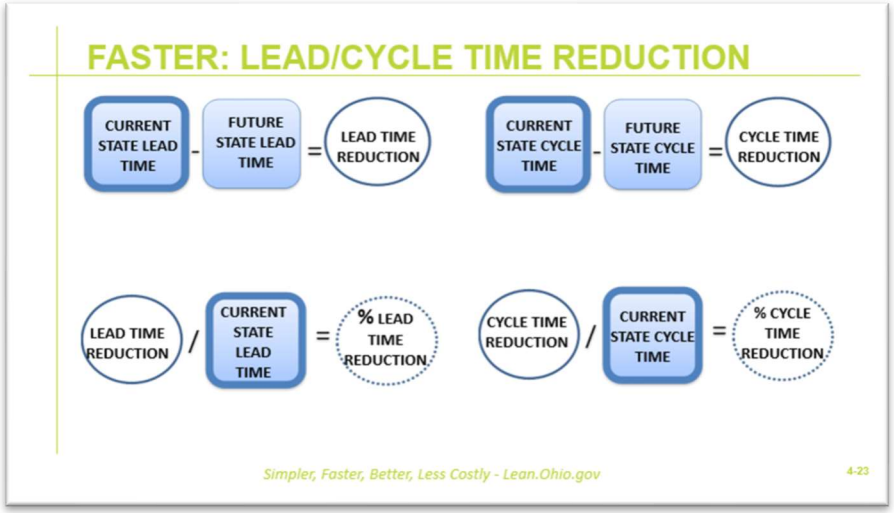
Lead Time:

The time gap between when a customer request is placed for a product/service and when it is delivered. Lead times vary by process and may even vary for the same process in different situations, like during renewal periods, seasonal demand, etc.

Cycle Time:

The time elapsed from the start to the end (one cycle) of an operation. It is the time taken to complete processing of a single unit of a product/transaction and includes the time consumed by all activities within the process area including product/service creation or transformation, wait time, transportation, and rework.

(Lead Time Before) – (Lead Time After) = Lead Time Savings



BETTER

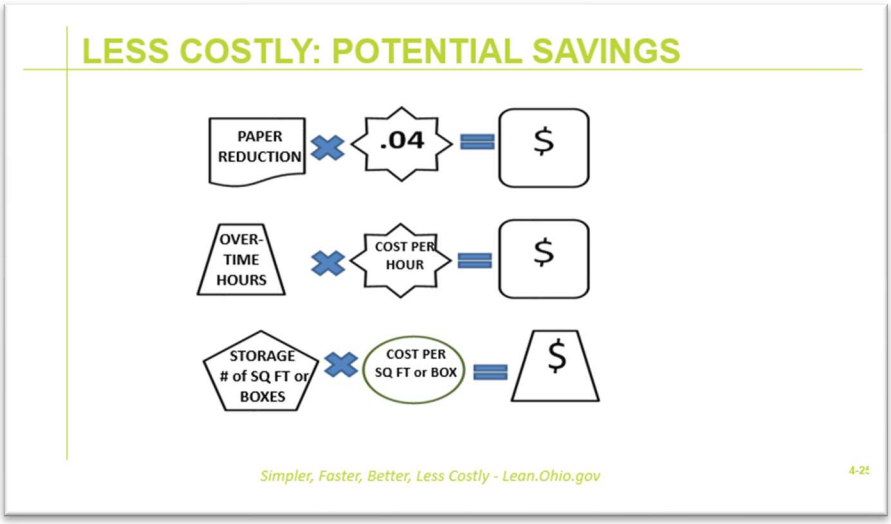
Better reflects the **Impact on Customers**

How do you know if something is better?

=

LESS COSTLY, POTENTIAL SAVINGS

- **Cost avoidance** – won't need to hire additional staff/ won't need layoffs (unemployment costs)
- **Direct savings** – reduction in overtime, office supplies, rent, travel costs, postage, equipment
- **Redirect staff time** to other projects



It is imperative that you document **how** cost savings were calculated. Also, share your findings with the leadership team and/or finance area before you report-out.

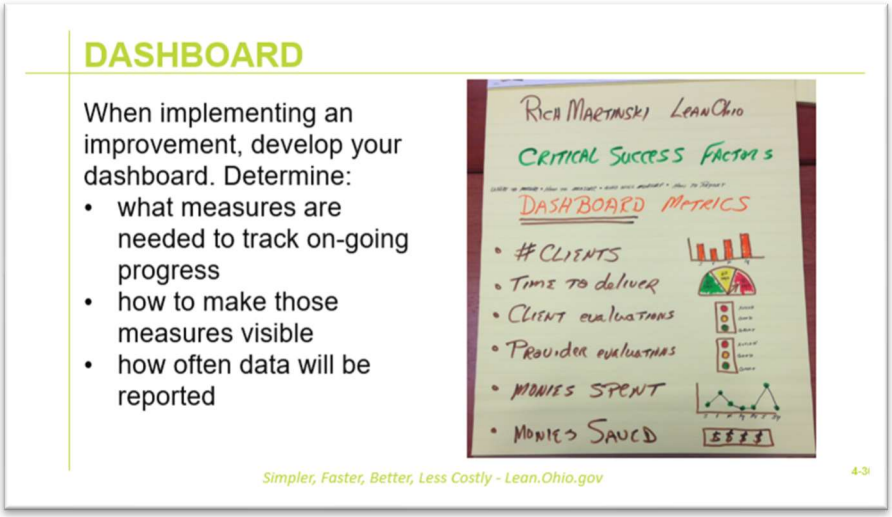
Visual Management and Dashboards (Slide 4.26 – 4.30)

Dashboards

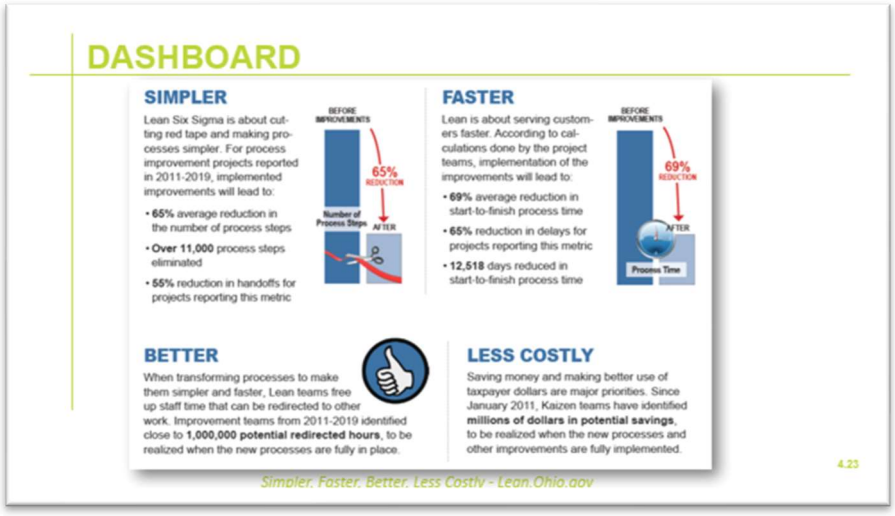
A Dashboard provides on-going information about how you are doing on the journey to provide quality, needed products, information, and services to your customers. It is a form of visual management that everyone can see and respond to. As you make your improvements you need to design a dashboard to monitor your progress.

When implementing an improvement, develop your dashboard with these thoughts in mind:

- What measures are needed to track on-going progress
- How to make those measures visible
- How often data will be reported



This is an example of a scorecard and bringing all the measures together.



ACTIVITY: DOP MEASURES OF SUCCESS (Slide 4.31)

In your DOP groups calculate the Current State and Future State Score Card for your DOP Group.

Measure	Current State	Future State	Change
Process Steps			%
Decision Points Handoffs Delays Waste Points			% % % %
Process Lead Time			%

TELL YOUR STORY: A3 (Slide 4.35-4.37)

Implementation of your improvement and monitoring the results to sustain the gains is critical. How will you monitor? What data will you track? What measures would tell you if something is slipping in your process? What measures would tell you if things are going well? What are your next steps?

Telling your story is both a celebration of hard work and a learning opportunity that needs to be shared widely so that the whole organization leans from your project. The A3 is the tool to use to share the story of the project, what was improved and what was learned.

A3 Topics and Contents

Title, Date Started:	Current Date:	Team, Executive Sponsor:
P1: Why change is needed	P4: Analysis	C7: Improvement Metrics
Why are we working on this problem/opportunity? What is the business case? What is the pain point? What is the impact? Scope?	What is preventing achievement of the goal? What is the root cause or causes of the problem? Fishbone or 5 whys.	Collect data. Check the results of your improvement. Did you close the gap? Simpler, faster, better, less costly.
P2: Current State	P5: Potential Solutions	C8: Check Results
What is currently happening? Extent of the problem? Data. Statement of the problem. Present depiction of current state.	Brainstorm solutions. Analyze them. Select a solution to test.	What went well? What didn't? If you didn't achieve goal, then go back to test another solution. If goal is achieved, put into standard work.
P3: Future State	D6: Action Plan	A9: Follow-up and Monitoring
What specific outcome is required? What is the goal? What is the gap?	Develop an action plan for running your test (or pilot) and implement it.	What is the plan for ensuring that solution benefits are maintained? How will you monitor?

DOP A3

Title: Your name:	Date Started: Current Date:	Team: Sponsor:
P1: Background/Why change is needed	**P4**: Analyze	**C7:** Check Results
P2: Current State	**P5:** Potential Solutions	**C7**: Other Results
P3: Project Goals	**D6: Action Plan & Test**	**A8: Follow-up and Monitoring**

ACTIVITY: TELL YOUR STORY, INDIVIDUAL PROJECT A3

Title: Your Name:	Date Started: Current Date:	Team: Sponsor:
P1: Background/Why change is needed	P4: Analyze	C7: Improvement Metrics
P2: Current State	P5: Potential Solutions	C8: Check Results
P3: Project Goals	D6: Action Plan & Test	A9: Follow-up and Monitoring

A3 Topics and Contents (Again… For Reference!)

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What specific outcome is required? What is the goal? What is the gap?	Develop an action plan for running your test (or pilot) and implement it.	What is the plan for ensuring that solution benefits are maintained? How will you monitor?

TAKING LEAN BACK TO YOUR WORKPLACE (SLIDES 4.38-4.42)

PDCA

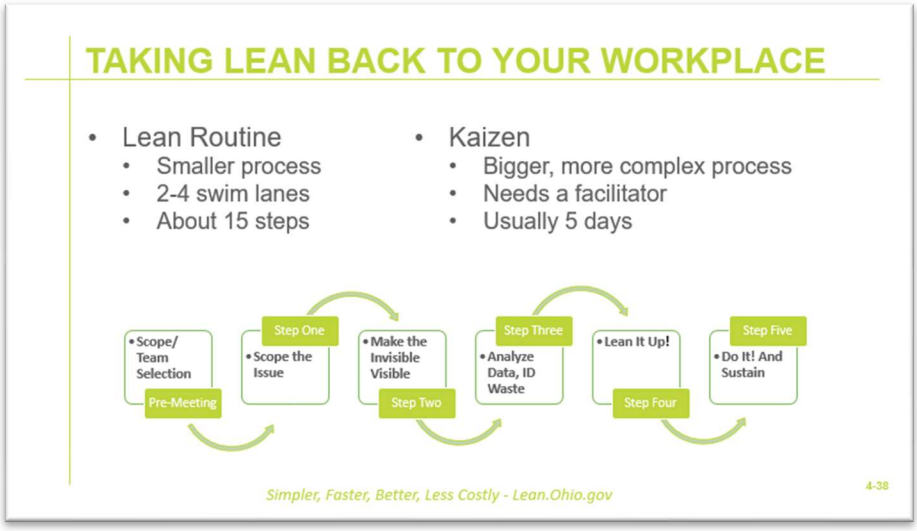
- Make sure it is a process
- Smaller, daily work projects
- Apply to individual work and team-based work

Lean Routine

- Smaller process
- Can involve more than one section or work unit
- 2-4 swim lanes
- About 15 steps

Kaizen Event

- Bigger, more complex process
- Needs a skilled facilitator
- Usually 5 intensive days
- Senior leadership support; Commitment to implement when complete



Getting to Next: 30-90-180 Phased Implementation

Next 30 Days: Use it!

30 – 90 Days: Practice

90 – 180 Days: Being intentional keeps Lean alive!

Helping People Embrace Change **(Slides 4.43 – 4.62)**

Change Management is:

The process, tools, and techniques to manage the people side of change to achieve the required business results.

Five Tenants of Change Management

1. We change for a reason
2. Organizational change requires individual change
3. Organizational outcomes are the collective result of individual change
4. Change management is an enabling framework for managing the people side of change
5. We apply change management to realize the benefits and desired outcomes of change

Change Management is a Process and Competency

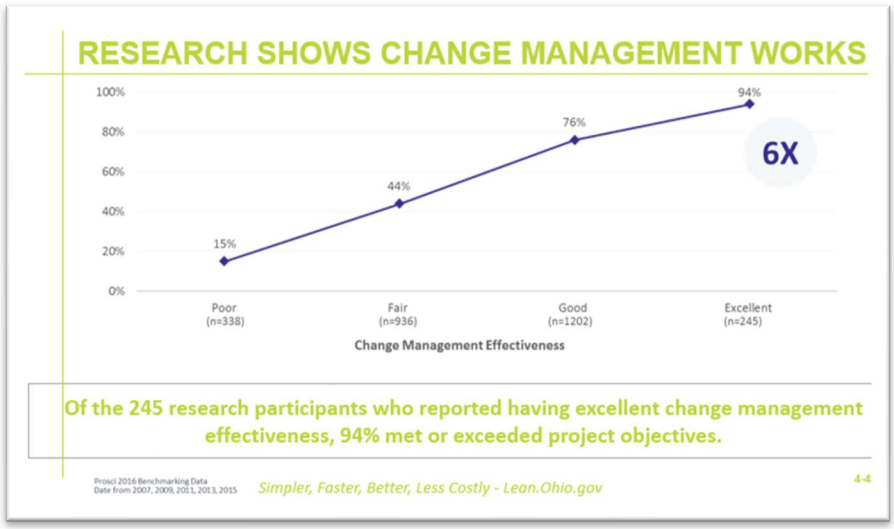
Process:

Competency:

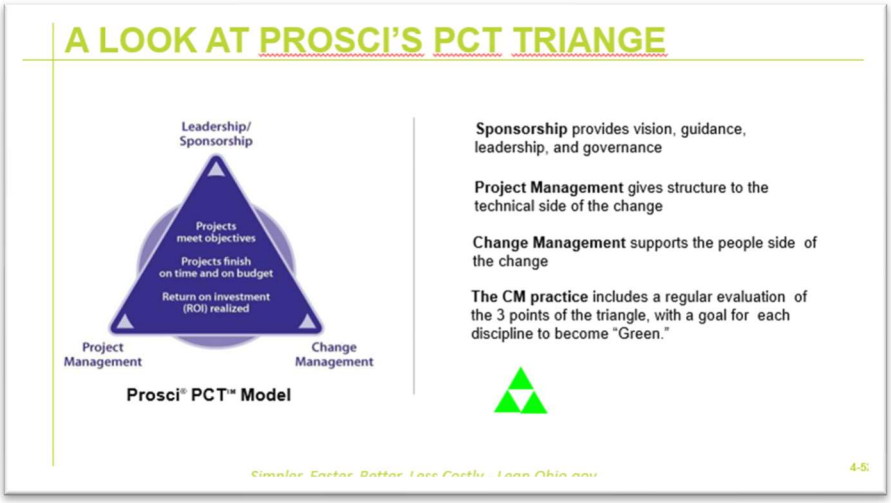
Common Reactions to Change

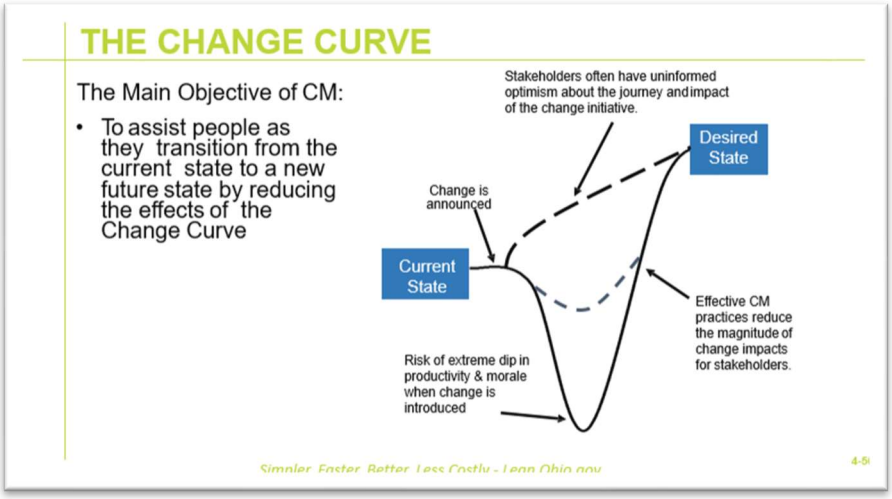
- People feel awkward, ill at ease, and self-conscious
- People will think about what they have to give up
- People will feel alone, even when everyone else is going through the change.
- People can only handle so much change.
- People are at different levels of readiness for change.
- People will be concerned that they don't have enough resources.
- If you take the pressure off, people will then revert back to old behaviors

Research Shows Change Management Works



The Change Triangle and Change Curve





Consequences of Not Managing the People Side of Change

- Lower productivity
- Passive resistance
- Active resistance
- Turnover of valued employees
- Disinterest in the current or future state
- Arguing about the need for change
- More people taking sick days or not showing up
- Changes not fully implemented
- People finding work-arounds
- People revert to the old way of doing things
- The change being totally scrapped
- Divides are created between ‘us’ and ‘them’

Common Reasons for Resistance

- Lack of awareness about the business reasons for the change.
- People do not see anything positive in it for them.
- Mixed messages from managers.
- Fear about something – decreased job role, increased workload, loss of position or power, not knowing how to change, etc.
- Belief (or hope) that “this too shall pass”

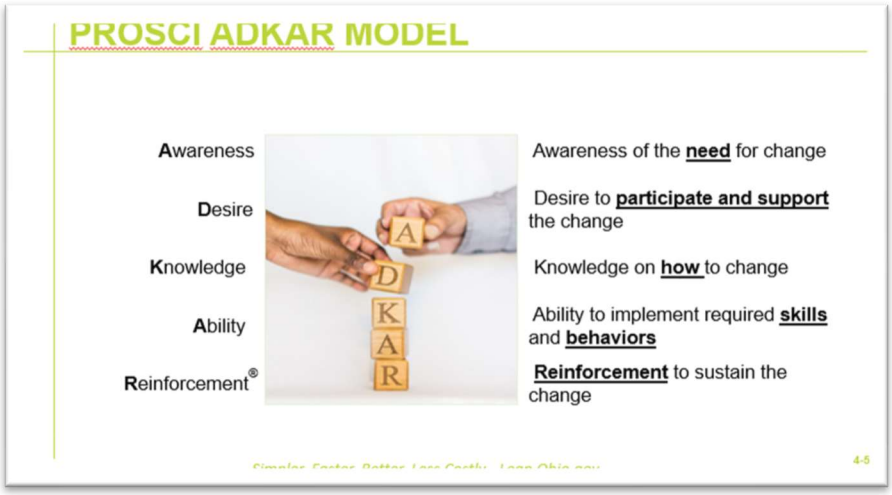
- Lack of inclusion in planning for the change
- Assumption that upcoming retirement exempts them from making the change
-

Classical Reasons for Resistance to Change

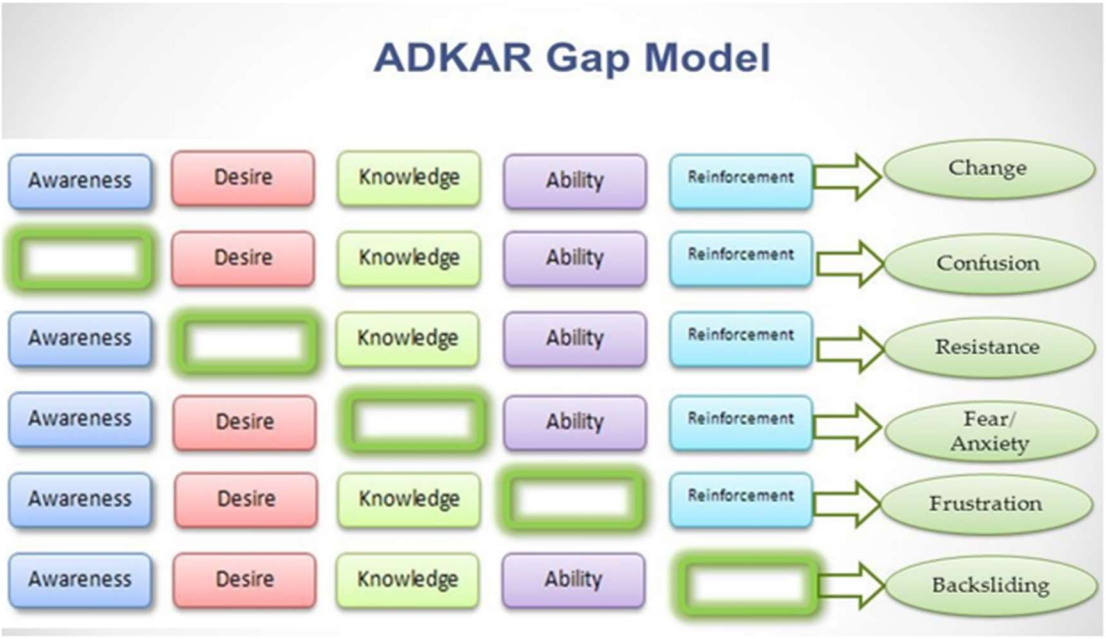
1. I'm too full of emotion/fear to think about what you are talking about."
2. This all comes as a big shock.
3. I'm scared of the transition, not the idea.
4. I don't know how big a change this really is.
5. I don't see how I fit in any of this.
6. I feel I have no say in what happens.
7. I'm fed up with phony change that goes nowhere (They want the real thing).

What Does Resistance Look Like?

- Disruptive behavior, or the opposite…
- Silence and withdrawal
- Opting out by refusing to participate, or the opposite…
- Pretending to go along
- Negative story telling
- Smokescreens and other stalling behaviors



Supporting ADKAR – why order matters



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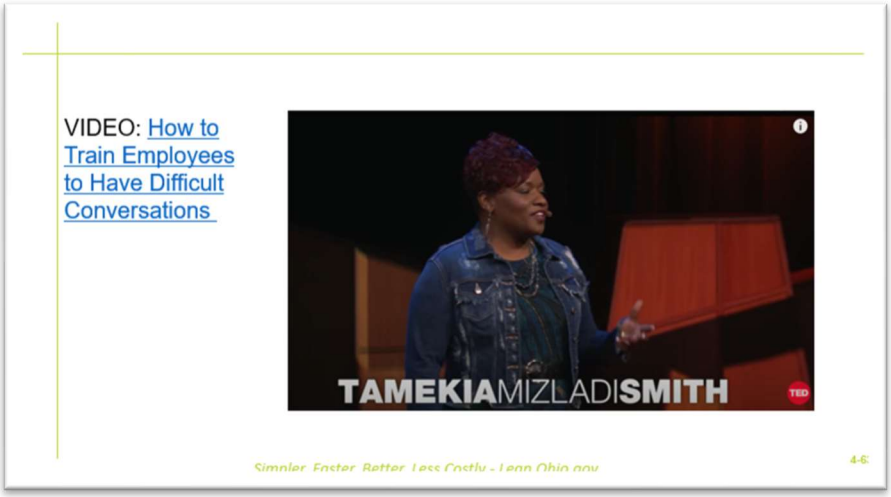
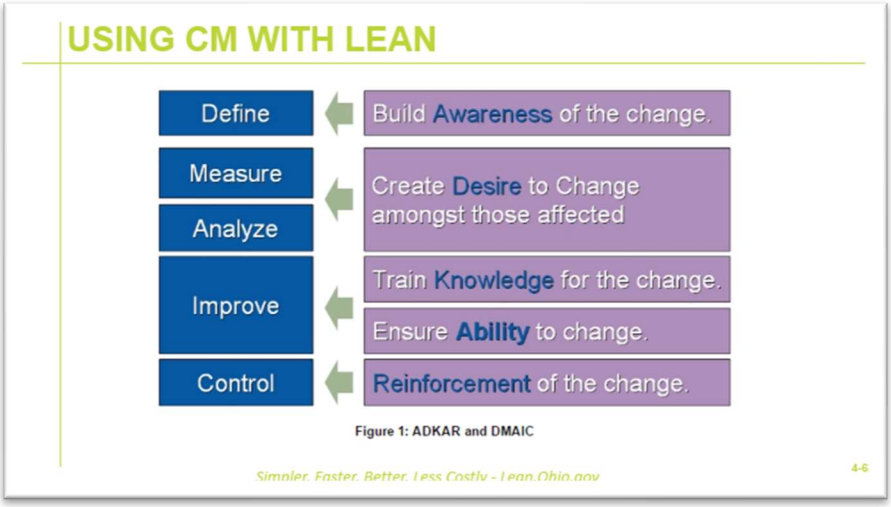
VIDEO: How to Train Employees to Have Difficult Conversations



Supporting the Change Sequence

- **PLAN AHEAD,** including leadership, middle management, and employee focus group(s) in the process
- Plan to **OVER COMMUNICATE**
- Plan **WHO, WHAT, WHEN, and HOW** others will be involved in roll out
- Plan to **TOUCH BASE** along the way
- Plan to **CREATE A SAFE PLACE** for honest conversations (with guidelines)

Using Change Management with Lean

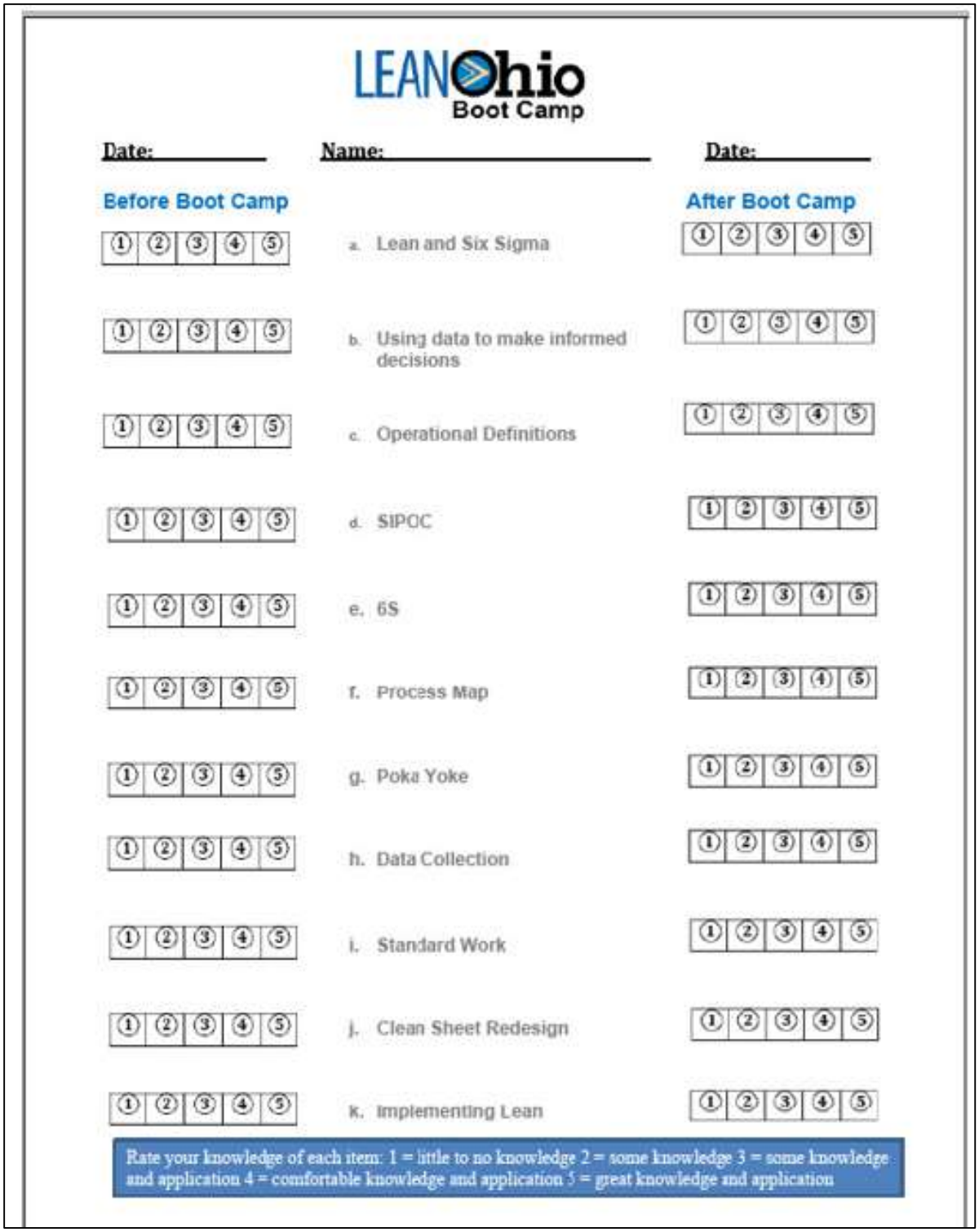


Tips for Effective Listening

1. Stop talking… so you can listen
2. Allow people time to absorb the message, and then discuss their questions
3. Provide opportunities to talk outside of formal meetings – arrange informal gatherings, one-on-ones, and brown-bag lunches
4. Seek to understand; listen for meaning (remember that smokescreens are common)
5. Actively seek more information – ask for clarification or elaboration
    - Learn to say “Tell me more about that…”
    - Research and Practice the art of the “5-whys”
6. Listen to hallway conversation, and join in
7. Give your full attention to the person talking – Put your phone & laptop aside

VIDEO: Using Empathy

Compare Your Results to your pre-test on 10.



LEANOhio Boot Camp

Date: _____ Name: _____ Date: _____

Before Boot Camp		After Boot Camp
① ② ③ ④ ⑤	a. Lean and Six Sigma	① ② ③ ④ ⑤
① ② ③ ④ ⑤	b. Using data to make informed decisions	① ② ③ ④ ⑤
① ② ③ ④ ⑤	c. Operational Definitions	① ② ③ ④ ⑤
① ② ③ ④ ⑤	d. SIPOC	① ② ③ ④ ⑤
① ② ③ ④ ⑤	e. 6S	① ② ③ ④ ⑤
① ② ③ ④ ⑤	f. Process Map	① ② ③ ④ ⑤
① ② ③ ④ ⑤	g. Poka Yoke	① ② ③ ④ ⑤
① ② ③ ④ ⑤	h. Data Collection	① ② ③ ④ ⑤
① ② ③ ④ ⑤	i. Standard Work	① ② ③ ④ ⑤
① ② ③ ④ ⑤	j. Clean Sheet Redesign	① ② ③ ④ ⑤
① ② ③ ④ ⑤	k. Implementing Lean	① ② ③ ④ ⑤

Rate your knowledge of each item: 1 = little to no knowledge 2 = some knowledge 3 = some knowledge and application 4 = comfortable knowledge and application 5 = great knowledge and application

WRAP UP AND NEXT STEPS

Simpler, Faster, Better, Less Costly
www.lean.ohio.gov