OHIO AUDITOR OF STATE
KEITH FABER

Government Efficiency

Welcome and Introductions

- **Name and Role**
- **Organization**
- **Favorite Easter food**
- **Any experience with Lean/Six Sigma/Quality Improvement**

Agenda

- Auditor of State's Office Overview
- Lean and Six Sigma Overview
- Lean and Six Sigma Tools
- Lean and Six Sigma in the Government
- Lean Resources

Auditor of State's Office Overview

Our Mission, Responsibilities, and Organizational Impact

Our Mission

As Ohio's chief compliance officer, the Auditor of State makes Ohio government more efficient, effective, and transparent by placing checks and balances on state and local governments for taxpayers.

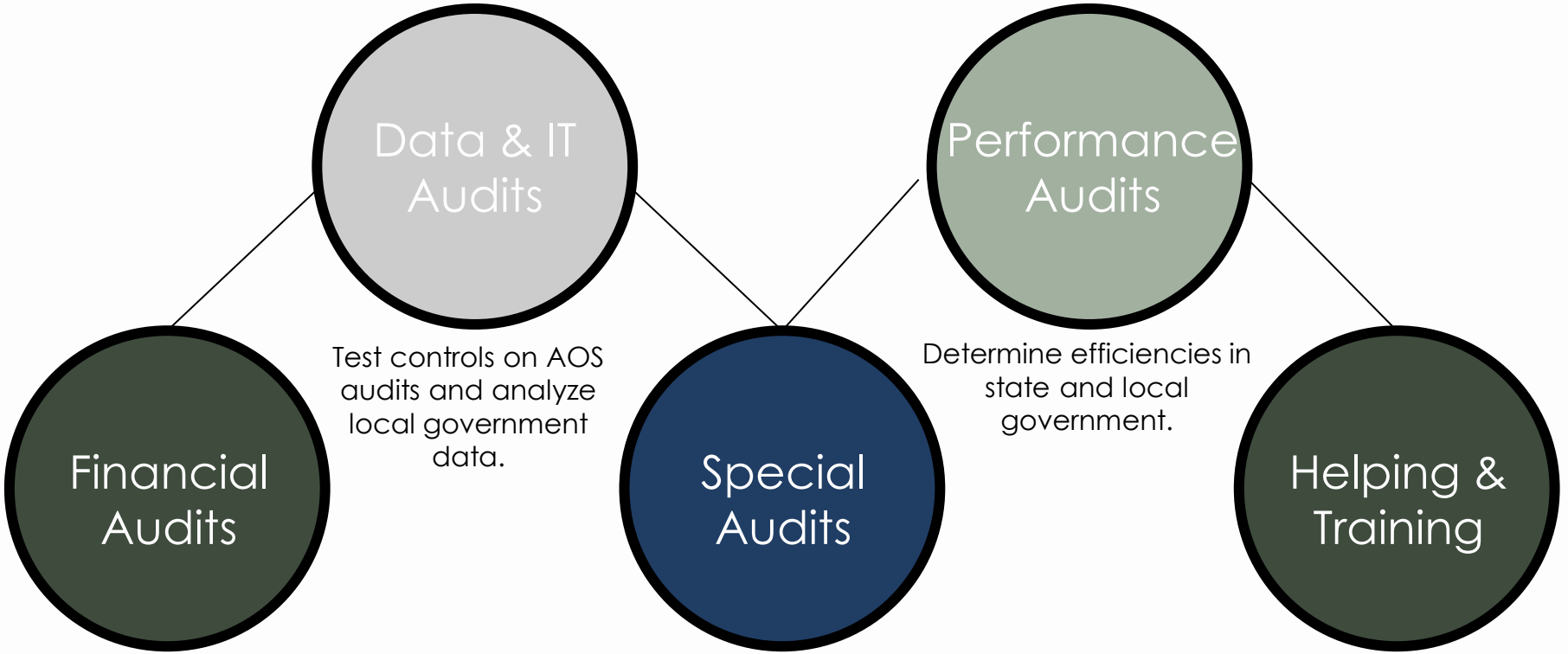
Auditor Keith Faber

- Father of 2 and husband to Andrea
- From Celina, Mercer County
- First job as janitor at age 12
- Watchdog of the Treasury award winner
- Graduate of OSU, Moritz College of Law
- Public servant for more than 24 years
  - Ohio House of Representatives: 2001–2007 and 2016-2018
  - Ohio Senate: 2007–2016, including President of the Senate, 2013–2016

By the Numbers

5,900	$3,800,000,000	124,000
$200,000,000	$6,400,000,000	154
800	1,704	$28,529,126

Responsibilities of the Office



What Do These Items Have in Common?

Lean and Six Sigma Overview

What is Lean Six Sigma?

LEAN

Focuses on waste reduction by streamlining a process.

SPEED

+

SIX SIGMA

Focuses on preventing defects through problem solving.

ACCURACY

=

LEAN SIX SIGMA

Lean strengthens Six Sigma: Problem solving + improving processes delivers greater results.

RESULTS

LEAN SIX SIGMA Is Built on Four Core Principles:

- Everything we do is a process with a supplier and a customer
- Every process has variation and waste — no process is perfect
- All variation and waste have identifiable causes
- Causes can be eliminated, reduced, or controlled

5 Lean Six Sigma Principles

1. **Work for the Customer**
   Deliver maximum benefit by defining quality based on customer and market demands.

2. **Find Your Problem and Focus on It**
   Use data to identify the true problem and concentrate improvement efforts there.

3. **Remove Variation and Bottlenecks**
   Reduce defects and waste by streamlining or eliminating inefficient processes.

4. **Communicate Clearly and Train Team Members**
   Deliver maximum benefit by defining quality based on customer and market demands.

5. **Be Flexible and Responsive**
   Refine or remove ineffective processes to support continuous improvement and change.

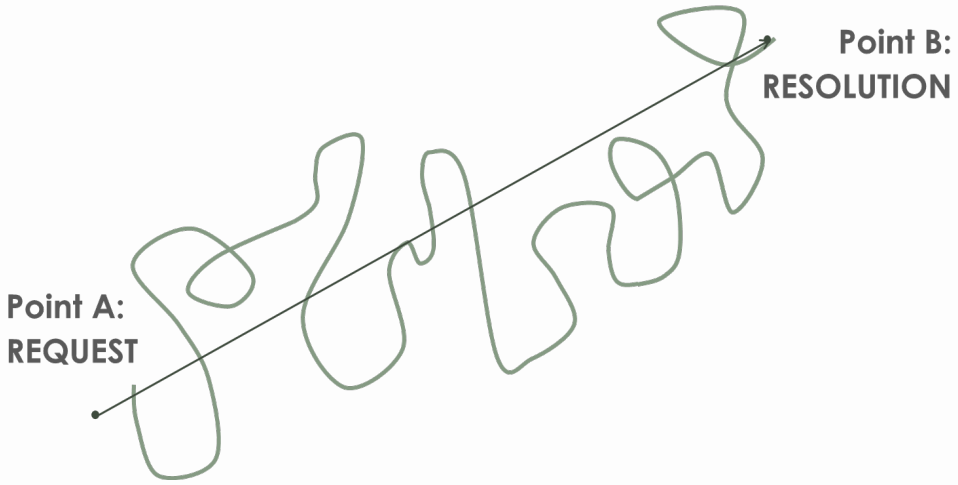
Lean and Six Sigma

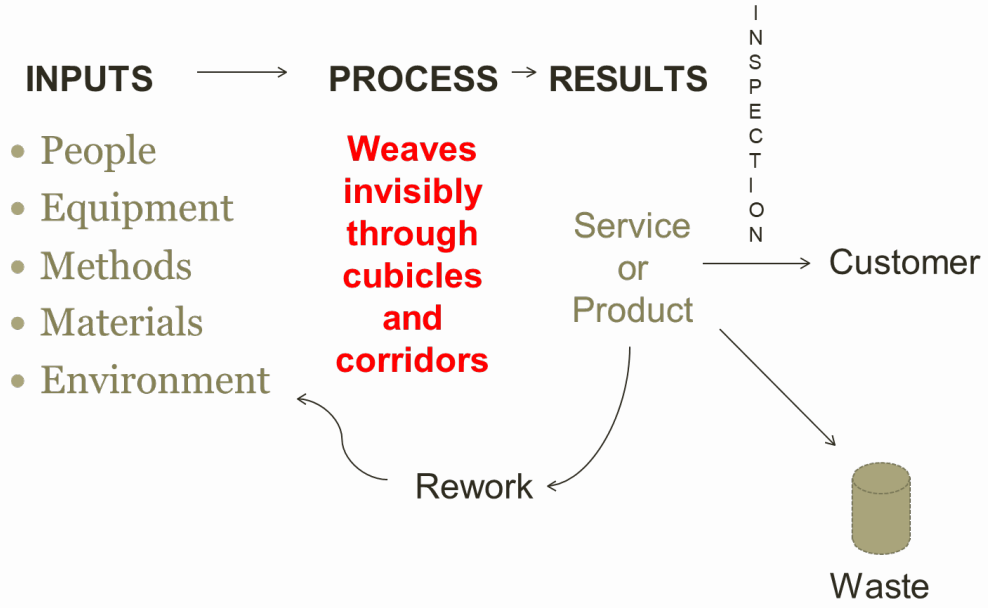
Lean	Six Sigma
PDCA Methodology	DMAIC Methodology
Reduce Time and Waste	Reduce Defects and Variation
Reduce cycle time and bottlenecks, increase flow and pull	Six Sigma Goal: 3.4/1M 1,000,000 @ 99% = 10,000 1,000,000 @ 99.99966% = 3.4
Process Mapping, 5S and 8 Wastes – and more	Data and Analysis Tools – 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

Processes

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

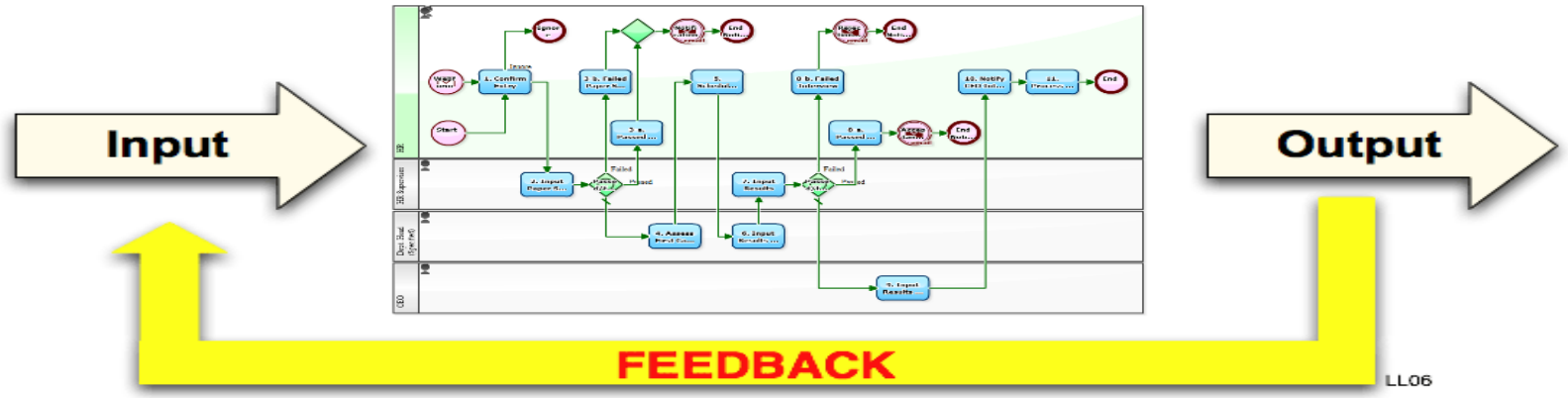
- **Manufacturing Processes** – Clearly defined and physically present on the shop floor.
- **Government & Service Processes** – Often invisible, moving through cubicles and offices.





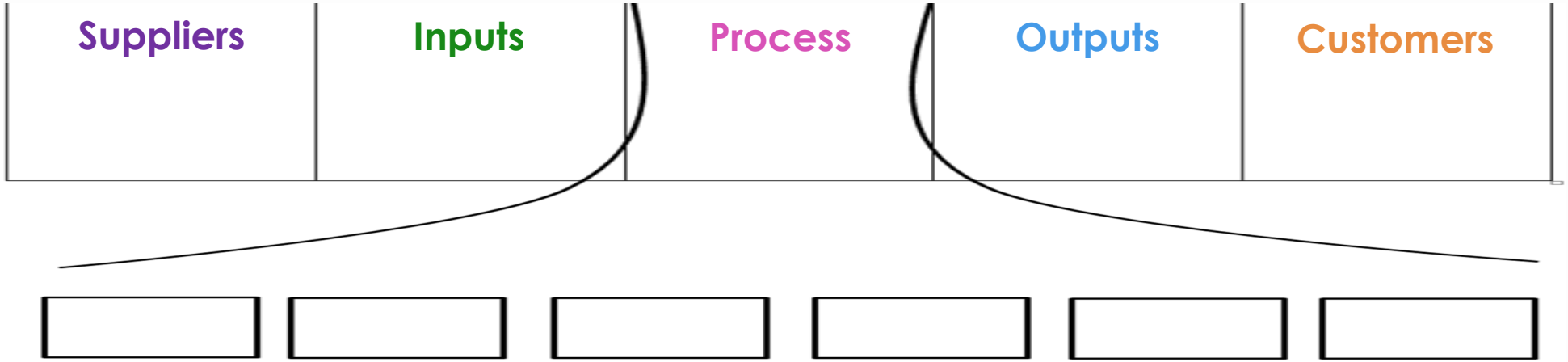
Four Voices
Sources of Process Feedback

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



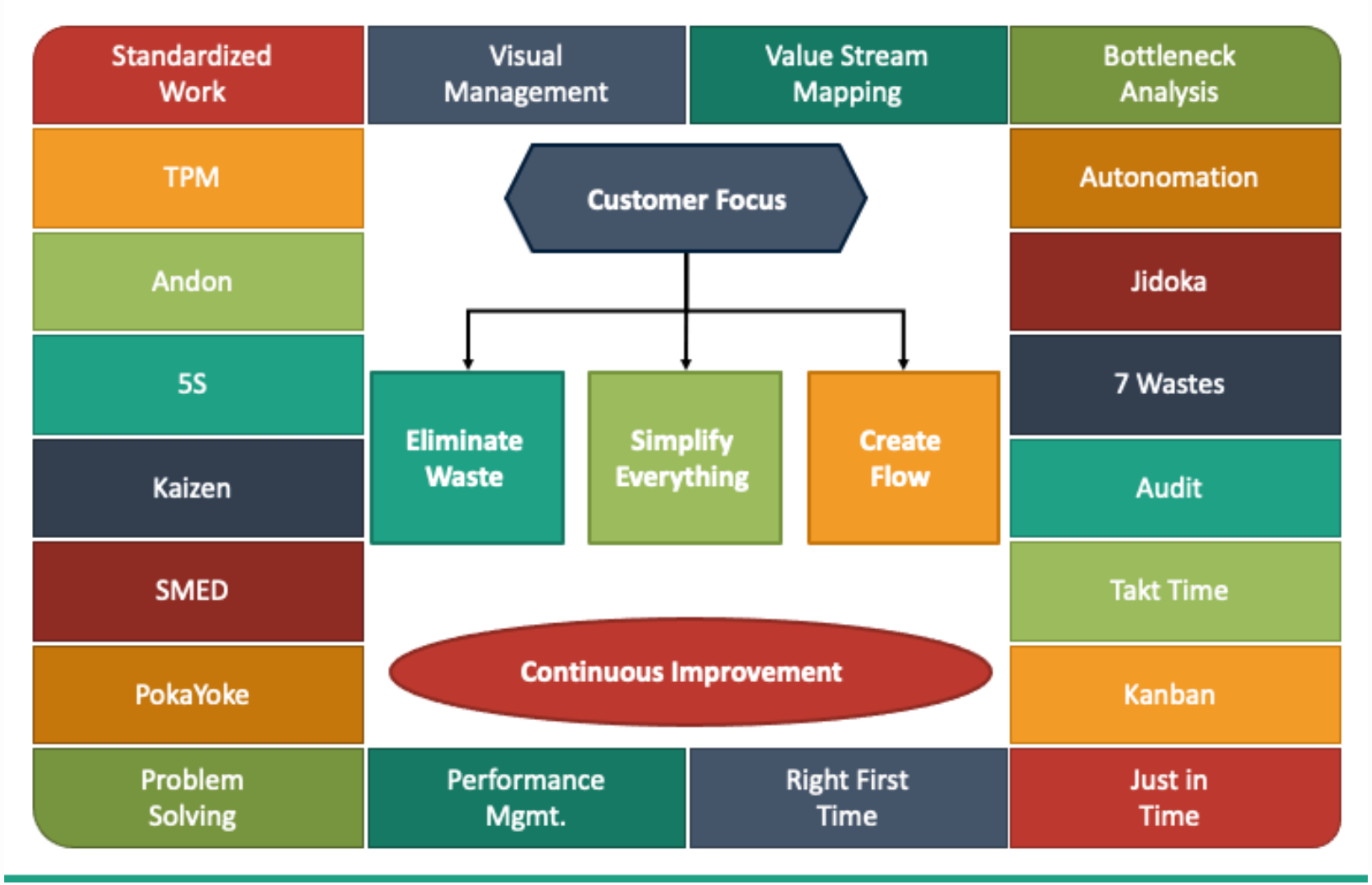
SIPOC
Suppliers, Inputs, Process, Outputs, Customers

- **Suppliers** - Who provides inputs for the process?
- **Inputs** - Materials, information, or services needed.
- **Process** - High-level steps to create the output.
- **Outputs** - The product or service delivered.
- **Customers** - End users or stakeholders impacted by the process.



Lean and Six Sigma Tools

Lean Tools

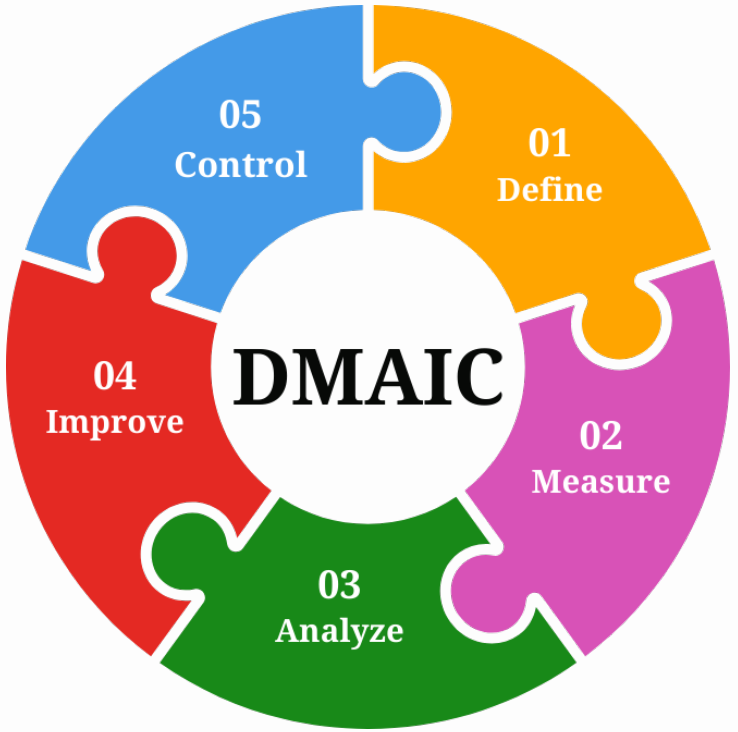

Standardized Work
Visual Management
Value Stream Mapping
Bottleneck Analysis
TPM
Customer Focus
Autonomation
Andon
Jidoka
5S
7 Wastes
Eliminate Waste
Simplify Everything
Create Flow
Kaizen
Audit
SMED
Takt Time
Continuous Improvement
PokaYoke
Kanban
Problem Solving
Performance Mgmt.
Right First Time
Just in Time

PDCA
Plan-Do-Check-Act

- **Plan** – Identify the problem, analyze data, and develop an improvement plan.
- **Do** – Implement the change on a small scale or pilot phase.
- **Check** – Measure results, analyze effectiveness, and compare to expected outcomes.
- **Act** – Standardize successful changes and continuously improve.

DMAIC
Define, Measure, Analyze, Improve, Control

- **Define** – Identify the problem, customer needs, and project scope.
- **Measure** – Collect data and establish a performance baseline.
- **Analyze** – Identify root causes of inefficiencies and defects.
- **Improve** – Develop and implement solutions.
- **Control** – Monitor and sustain improvements through standardized practices.



A3

1. Background: What are you talking about and why?

What is the purpose, the business reason for choosing this issue?
What specific performance measure needs to be improved?
What is the strategic, operational, historical, or organizational context of the situation?

2. Current Conditions: Where do things stand now?

What is the problem or need—the gap in performance?
What is happening now versus what you want or needs to be happening?
Have you been to the gemba?
What facts or data indicate there is a problem?
What specific conditions indicate that you have a problem or need?
Where and how much? Can you break the problem into smaller pieces?
→ Show facts and processes visually using charts, graphs, maps, etc.

3. Goal: What specific outcome is required?

What specific improvement(s) in performance do you need to achieve?
→ Show visually how much, by when, and with what impact.
→ Don't state a countermeasure as a goal!

4. Analysis: Why does the problem or need exist?

What do the specifics of the issues in work processes (location, patterns, trends, factors) indicate about why the performance gap or need exists?
What conditions or occurrences are preventing you from achieving the goals?
Why do they exist? What is (are) their cause(s)?
→ Use the simplest problem-analysis tool that will suffice to show cause-and-effect down to root cause. From 5 Whys to 7 QC tools (fishbone, analysis trees, Pareto charts) to more sophisticated SPC, 6 Sigma, and other tools as needed.
→ Test the cause-and-effect logic by asking "why?" downward and stating "therefore" upward.

5. Recommendations: What do you propose and why?

What are the options for addressing the gaps and improving the performance in the current situation?
→ Always start with two or three alternatives to evaluate.
How do they compare in effectiveness, feasibility, and potential disruption?
What are their relative costs and benefits?
Which do you recommend and why?
→ Show how your proposed actions will address the specific causes of the gaps or constraints you identified in your analysis. The link should be clear and explicit.

6. Plan: How will you implement? (4Ws, 1H)

What will be the main actions and outcomes in the implementation process and in what sequence?
What support and resources will be required?
Who will be responsible for what, when, and how much?
How will you measure effectiveness?
When will progress be reviewed and by whom?
→ Use a Gantt chart (or similar diagram) to display actions, steps, outcomes, timelines, and roles.

7. Follow up: How will you ensure ongoing PDCA?

How and when will you know if plans have been followed and the actions have had the impact planned and needed?
How will you know if you meet your targets?
How will you know if you reduced the gap in performance?
What related issues or unintended consequences do you anticipate?
What contingencies can you anticipate?
What processes will you use to enable, assure, and sustain success?
How will you share your learnings with other areas?

TIM U WOOD
8 Wastes in Lean

Transportation
Unnecessary movement of products & materials

Information / Inventory
Unnecessary storage of products & materials

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

Underutilization
Underutilizing systems and people's skills & knowledge

Waiting
Wasted time waiting for the next step in the process

Overproduction
Production that is more than needed or before it is needed

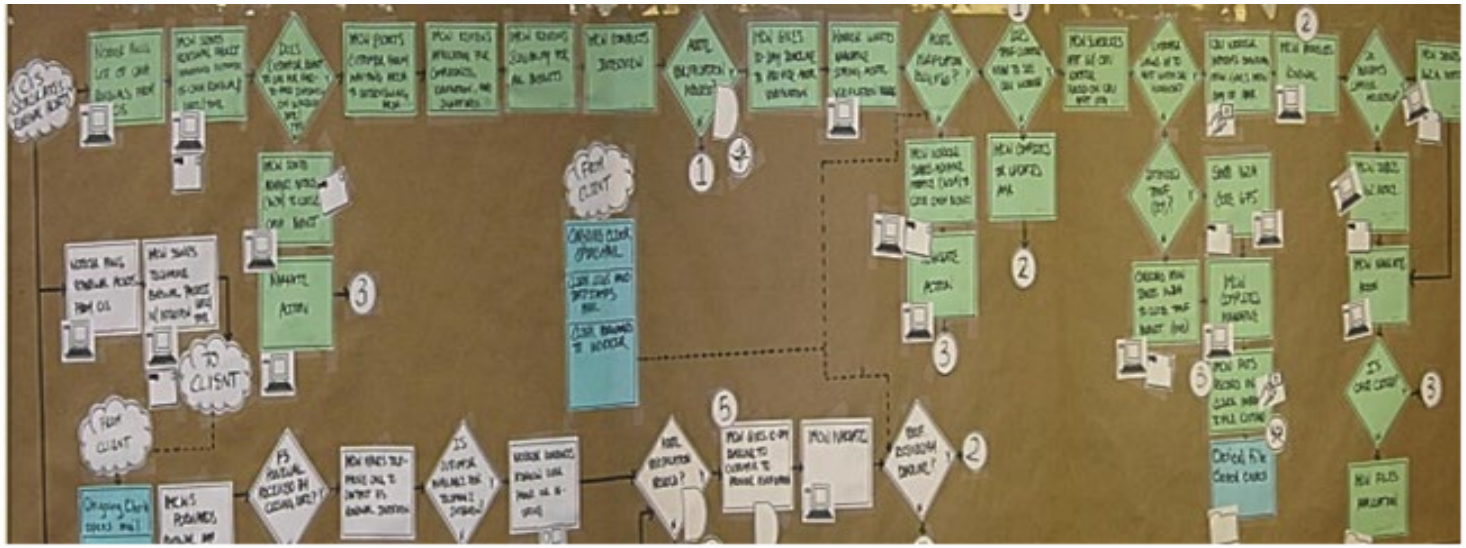
Over Processing
More work or higher quality than is required by the customer

Defects
Efforts caused by rework, fixing mistakes, and incorrect information

Process Map
Visual Representation of a Workflow

Process Maps are used to:

- Capture current & new process information
- Identify flow of transaction
- Identify responsibility of different business functions
- Clearly show hand-off between functions
- Identify VA & NVA activities
- Train associates in new process



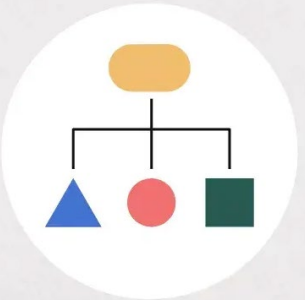
Click Here to Access the FEMA Process Mapping Resource
Click Here to Access the LEAN Ohio Process Mapping Resource

Process Mapping Steps

Step 1: Identify a process to map

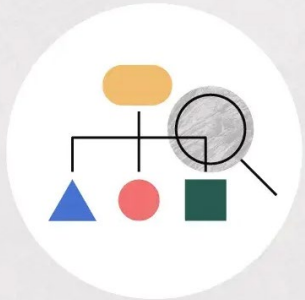
Step 2: List the activities involved

Step 3: Write out the sequence of steps



Step 4: Create a flowchart

Step 5: Finalize and share with your team



Step 6: Analyze for areas to improve

5 Why's
Root Cause Analysis

- **Problem-solving Technique** – Repeatedly asks "Why?" to uncover the root cause.
- **Step-by-step Approach** – Each answer leads to a deeper understanding of the cause.
- **Goes Beyond Symptoms** – Identifies the fundamental issue rather than surface-level problems.

The “Permit” Paper Plane Factory

Round 1

Process

- **Assembler 1:** Fold all papers in half.
- **Assembler 2:** Make all the wing folds.
- **Inspector:** Inspect each plane and signs.

Rules

- Work must be completed in **batches of 10.**
- **No planes may be passed forward until all 10 in the batch are finished at each step.**
- Quality checks happen only at the end of the batch.

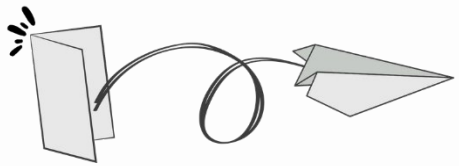
Round 2

Process

- **Assembler 1:** Fold all papers in half.
- **Assembler 2:** Make the wing folds.
- **Inspector:** Inspect each plane and signs.

Rules

- Work is completed **one plane at a time.**
- As soon as one plane is folded, it is passed on.
- Quality check happen as each plane is passed on.

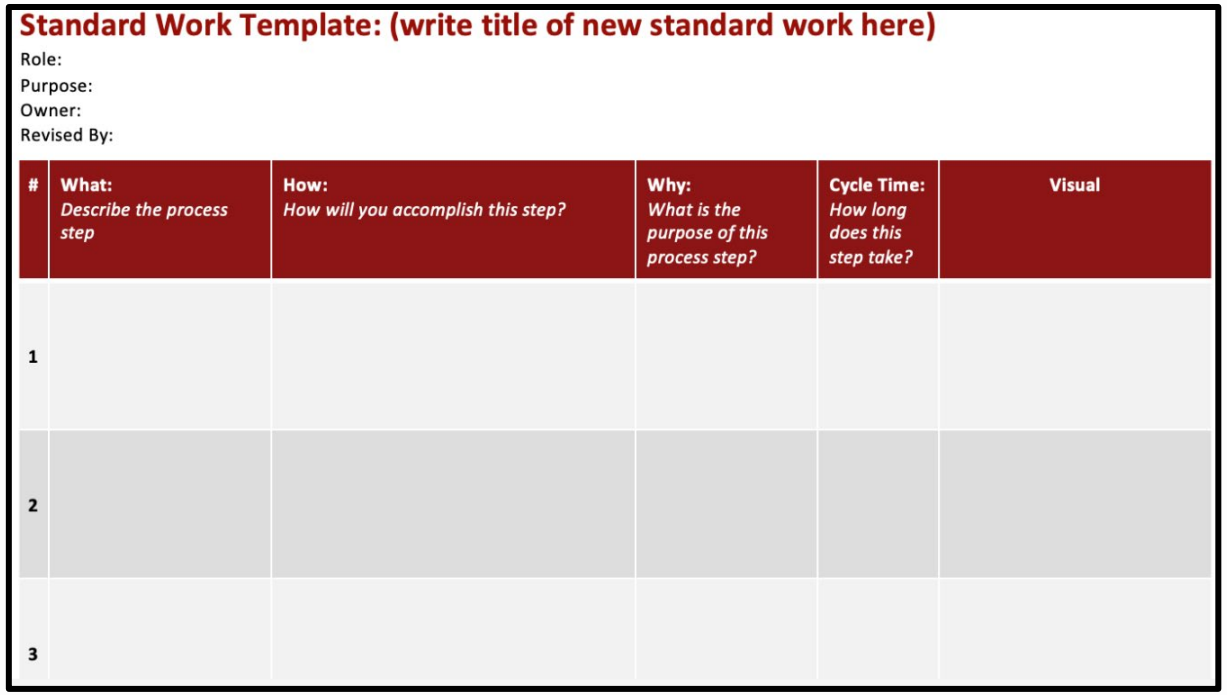


Standard Work
Best Practices for Efficiency

Definition
Standard work is a tool used to identify the safest most efficient way to accomplish a result/perform a process. Standard work produces a living document that standardizes work and reduces the variation in the process. The purpose is to achieve better and more consistent results for the customer by documenting the what, the how and as applicable, the why of work.

Use When
- Determining how a process will perform
- Creating predictability in a process and create consistency in outputs produced
- Identifying any variations or waste in a process
- Training

Click Here to Access Standard Work Templates



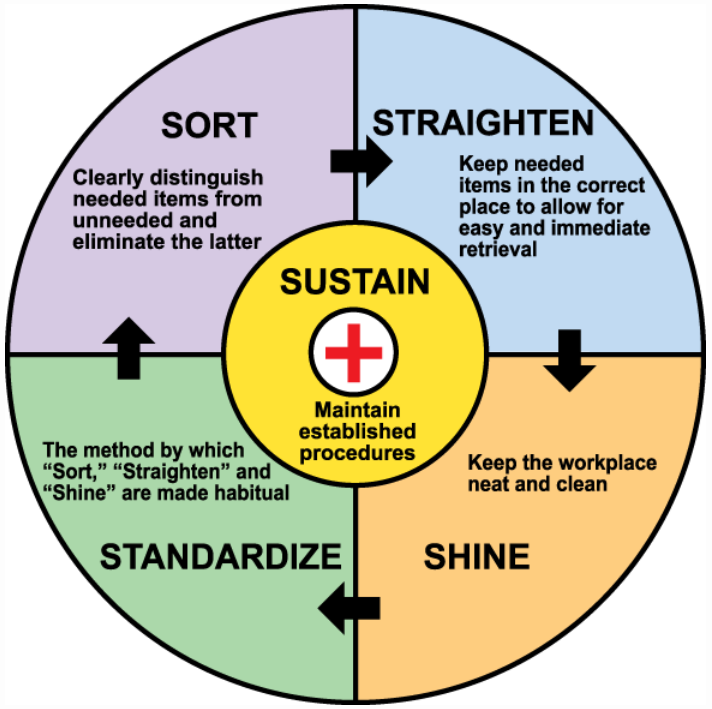
Standard Work Template: (write title of new standard work here)

Role:
Purpose:
Owner:
Revised By:

#	What: *Describe the process step*	How: *How will you accomplish this step?*	Why: *What is the purpose of this process step?*	Cycle Time: *How long does this step take?*	Visual
1					
2					
3					

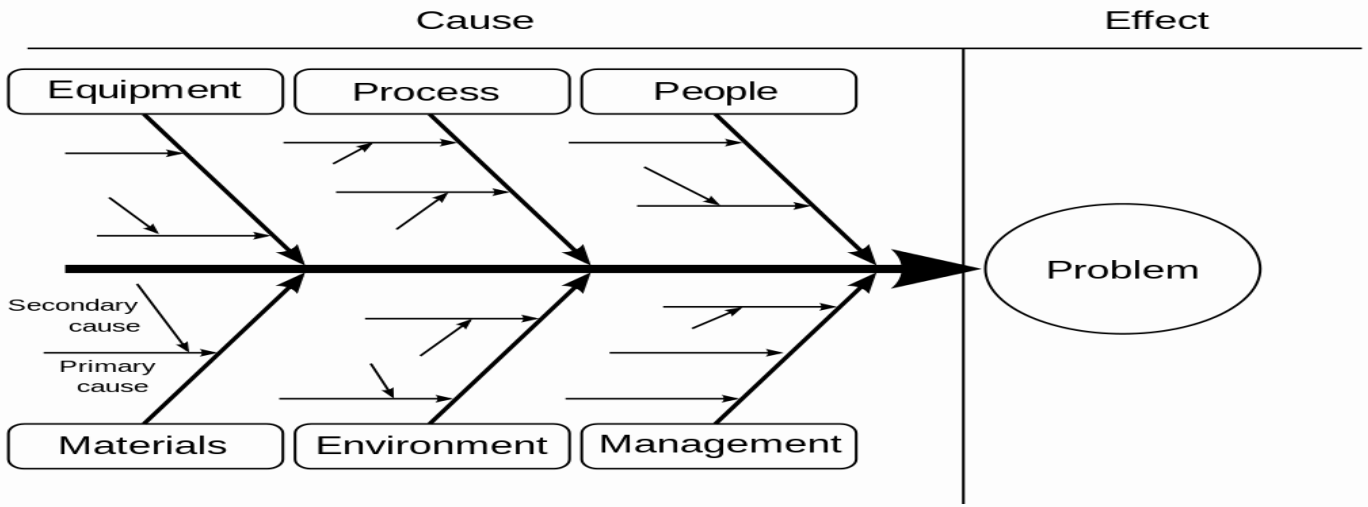
5S
Workplace Organization Method

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



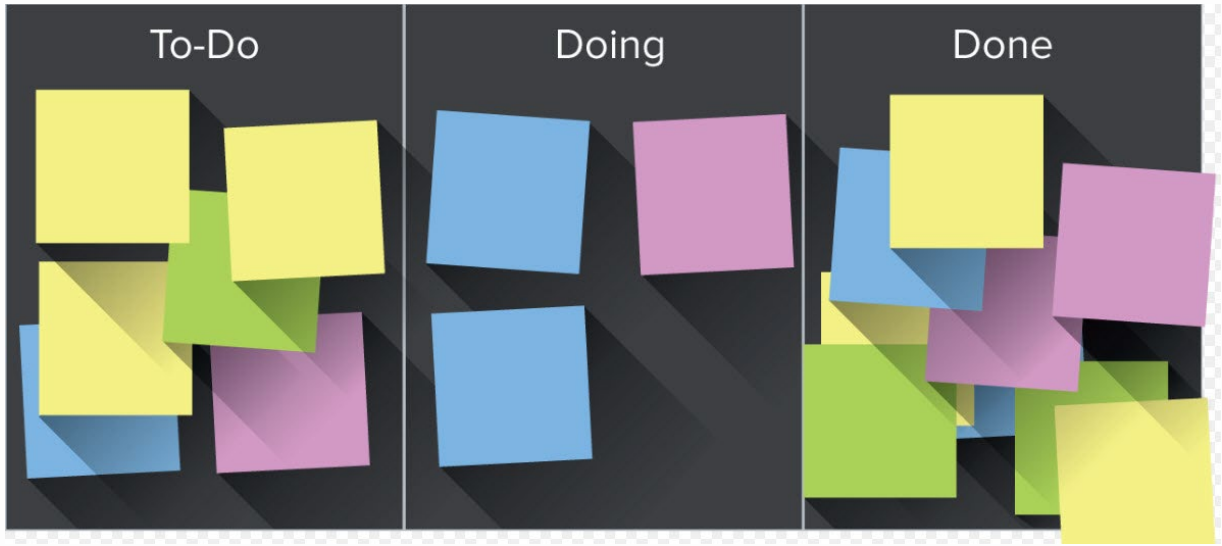
Fishbone Diagram (Ishikawa Diagram)

- **Root Cause Analysis Tool** – Helps identify underlying causes of problems.
- **Cause-and-Effect Visualization** – Organizes factors contributing to an issue.
- **Key Categories** – Includes People, Process, Materials, Environment, Equipment, and Measurement.
- **Structured Brainstorming** – Assists teams in diagnosing and addressing inefficiencies.



Kanban
Visual Task Management System

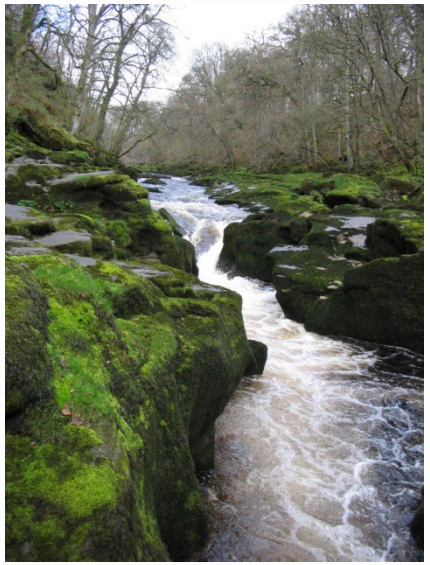
- **Visualizes Workflow** – Makes tasks and processes easily identifiable.
- **Improves Management** – You can't manage what you can't see.
- **Adds Context** – Helps prioritize tasks and support decision-making.
- **Enhances Teamwork** – Facilitates communication, coordination, and collaboration.
- **Drives Accountability** – What is visible is easier to track and manage.



Continuous Flow
Minimizing Waste & Maximizing Efficiency

- **Single-Unit Movement** – Processes one work unit at a time through each step.

- **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



Lean and Six Sigma in the Government

Lean Government Examples

1. SIMPLER 2. FASTER 3. BETTER 4. LESS COSTLY

Washington State – Unemployment Claims Processing

Problem:

- Backlog in unemployment claims leading to delays in benefit distribution.

LSS Implementation:

- Applied Lean management principles to streamline the claims process.
- Focused on reducing bottlenecks and improving workflow efficiency.

Results:

- Reduced the unemployment claims backlog by 60%.
- Improved timeliness in providing financial support to unemployed residents.

Lean Government Examples

1. SIMPLER 2. FASTER 3. BETTER 4. LESS COSTLY

U.S. Department of Veterans Affairs (VA) – Reducing Patient Wait Times

Problem:

- Extended wait times for veterans seeking medical appointments, leading to delays in care.

LSS Implementation:

- Applied Lean principles to streamline processes in the Emergency Department (ED) at the VA Palo Alto Health Care System.
- Focused on improving patient flow and reducing non-value-added activities.

Results:

- Decreased length of stay (LOS) for admitted patients by 42.2 minutes—from 398.7 to 356.5 minutes—after implementing Lean interventions.
- Enhanced efficiency in the ED, leading to better resource utilization and improved patient satisfaction.

Lean Government Examples

1. SIMPLER 2. FASTER 3. BETTER 4. LESS COSTLY

Ohio Taxation & Tax Appeals – Reducing Lead Time for Common Appeals

Problem:

- Backlog in processing returns and appeals, with long lead times and high processing costs.

LSS Implementation:

- Applied Lean management principles to streamline operations by consolidating four entry points into one, eliminating unnecessary complexity and significantly improving overall efficiency.

Results:

- Reduced backlog from 18,000 to fewer than 2,000 complex cases.
- Cut lead times from up to two years to a few days for common appeals.
- Achieved $529,200 in cost avoidance.
- Lowered the cost to process simple returns from $105 to $7.

Lean Government Examples

1. SIMPLER 2. FASTER 3. BETTER 4. LESS COSTLY

Ohio Department of Transportation
Real Estate Records– Reducing Waste and Improving Efficiency

Problem:

- The records retention process was overly complex and manual, leading to high costs, long lead times, and a growing backlog.

LSS Implementation:

- A Lean Six Sigma approach was used to analyze and redesign the process, streamlining it with standardized digital workflows that replaced manual, paper-based tasks.

Results:

- The process saw an 82% reduction in steps, and cost per box dropped from $705 to $1 by processing electronically.
- Lead time was reduced by up to 40%, 353 backlog boxes were cleared, and 700,000 paper touches were eliminated.

Lean Government Examples

1. SIMPLER 2. FASTER 3. BETTER 4. LESS COSTLY

Ohio Department of Public Safety
Highway Patrol Trooper Recruitment – Improving Efficiency

Problem:

- The recruitment process was highly complex, with hundreds of steps, frequent handoffs and delays, and inconsistent decision points making it difficult to efficiently hire and onboard new troopers.

LSS Implementation:

- A Lean Six Sigma approach was applied to map, analyze, and redesign the process, focusing on reducing delays and simplifying decision-making.

Results:

- The process was streamlined from 235 steps, 28 decisions, 76 handoffs, and 50 delays to just 34 steps, 8 decisions, 11 handoffs, and 15 delays.
- Lead time reduced from a range of 191 days to more than a year, down to 61 days

Lean Government Examples

1. SIMPLER 2. FASTER 3. BETTER 4. LESS COSTLY

City of Fort Wayne, Indiana – Improving Municipal Services and Operational Efficiency

Problem:

- Shifting government culture toward continuous improvement and data-driven decision-making.

LSS Implementation:

- A Lean Six Sigma approach was applied, focusing on reducing waste, streamlining processes, and improving the overall quality of services provided to residents through the use of DMAIC (Define, Measure, Analyze, Improve, Control), 5S (Sort, Set in Order, Shine, Standardize, Sustain), and Kaizen events.

Results:

- The process resulted in a 30% reduction in cycle times, significantly improving service delivery to residents.
- The city achieved over $10 million in cost savings, with notable improvements in Licensing and utility services that led to faster service and increased customer satisfaction.

Lean Government Examples

1. SIMPLER 2. FASTER 3. BETTER 4. LESS COSTLY

L.A. County Clerk's Office – Payment Variance Reduction & Process Improvement

Problem:

- Three bureaus experienced excessive payment variances — cash balance discrepancies between two payment systems — causing customer delays and lengthy reconciliation times.

LSS Implementation:

- A cross-functional team used DMAIC and a Swimlane Map to analyze the end-to-end process, identify root causes (system glitches and inconsistent practices), establish Standard Work, and correct the online ordering issue.

Results:

- Variances decreased from 8 to 1 per month.
- Reconciliation time dropped from 3 hours to 10 minutes, saving nearly 900 labor hours annually.
- The full DMAIC project was completed in approximately 4 months.

Key Questions Lean Process Metrics Help Government Agencies Answer

Time Metrics

- How long does it take to produce a product or deliver a service?
- How much of that time is processing time and how much is idle time?

Output Metrics

- How many products (e.g., permits) are completed or processed each month or year?
- What backlogs exist in the process?

Cost Metric

- How much does the process cost to operate (e.g., the number of full-time equivalent employees)?
- What cost savings did the team identify in the Lean event?

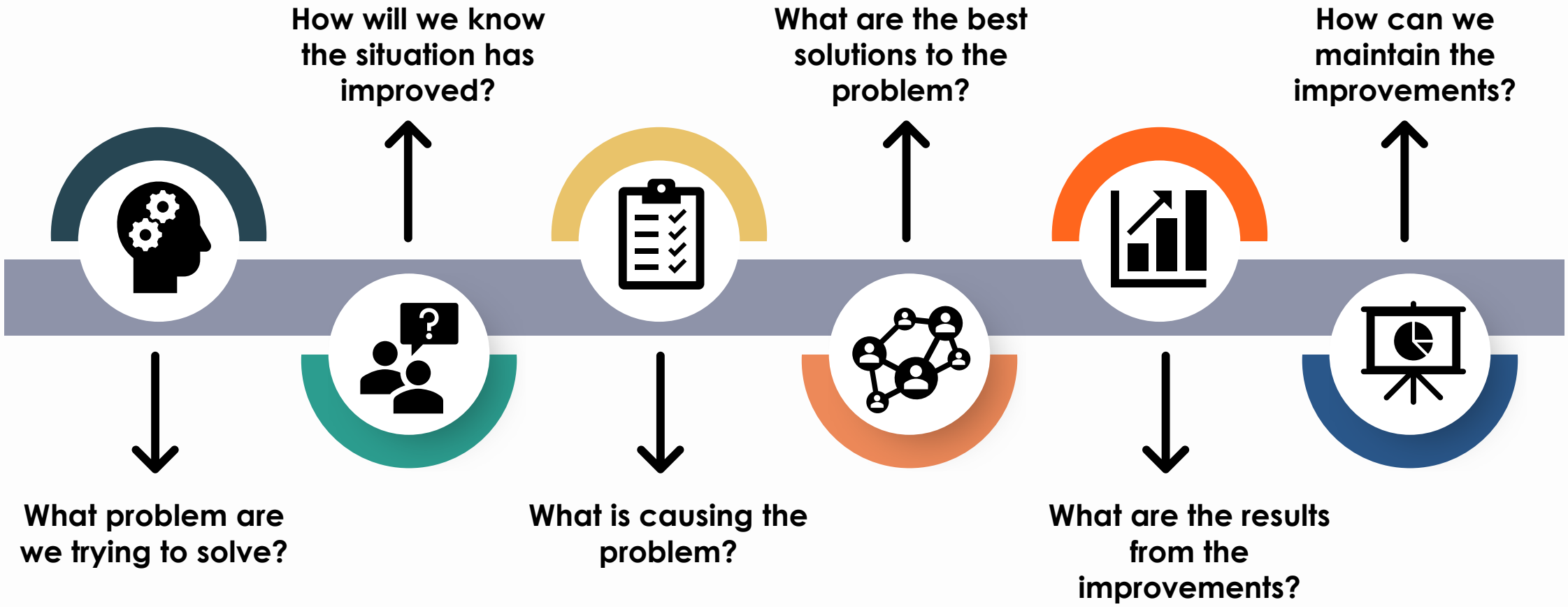
Process Complexity Metric

- How many steps are in the process?
- How many times is a document handed off between individuals, offices, or departments in the process?

Overview of Lean Government Metrics

Process Metrics		
Time Metrics	**Cost Metrics**	**Quality Metrics**
• Lead Time • Best and Worst Completion Time • Percent On-Time Delivery • Processing Time • Activity Ratio • Value Added Time • Non-Value Added Time • Percent Value Added Time	• Labor Savings • Cost Savings • Cost per Product	• Customer Satisfaction • Rework • Percent Complete and Accurate • Rolling First Pass Yield
Output Metrics	**Process Complexity Metrics**	
• Production • Backlog • Work in Process • Inventory	• Process Steps • Value Added Process Steps • Decisions • Delays • Handoffs • Loops • Black Holes	

A Repeatable Improvement Routine



Six Sigma Pick Chart

Project Charter

A Project Charter is a living document for an improvement team that outlines the presenting problem, the target and the boundaries of a process improvement effort.

Business Case

Problem Statement

Scope

Goal Statement

Timeline & Team (Milestones)

Click Here to Access the Project Charter Resource

Starting a Lean Journey: 6 Things to Keep in Mind

1. Changing Culture is Challenging:

- Takes time and persistence.
- Support through mentors, conferences, and the lean community is crucial.

2. Customize Lean Tools:

- Adapt tools to fit your company's specific needs.
- Learn from others but understand that what works for one may not work for all.

3. Learn Gradually:

- Avoid overwhelming yourself and others by trying to learn everything at once.
- Focus on incremental learning and training.

4. Hands-On Learning:

- Engage in experimentation and real-world application.
- Facilitate improvements and use experiences to enhance training.

5. Accept Mistakes:

- View mistakes as learning opportunities.
- Use the mantra "An improvement is an improvement" to stay positive.

6. Persistence is Key:

- Overcoming resistance from all levels of management can be tough.
- Embrace continuous improvement and keep trying despite challenges.

Getting Started

STEP 1
Visualize Your Workflow

- Map your entire process to gain full visibility
- Use Kanban boards to display workflow stages clearly
- Apply value stream mapping to see how workflows from start to finish
- Deploy a robust and sound methodology with tools that best fit for your operations

STEP 2
Monitor Your Workflow Cycle Time

- Track how long work items take from start to finish
- Identify bottlenecks and slow-moving stages
- Use cycle time data to improve delivery speed and productivity

Getting Started

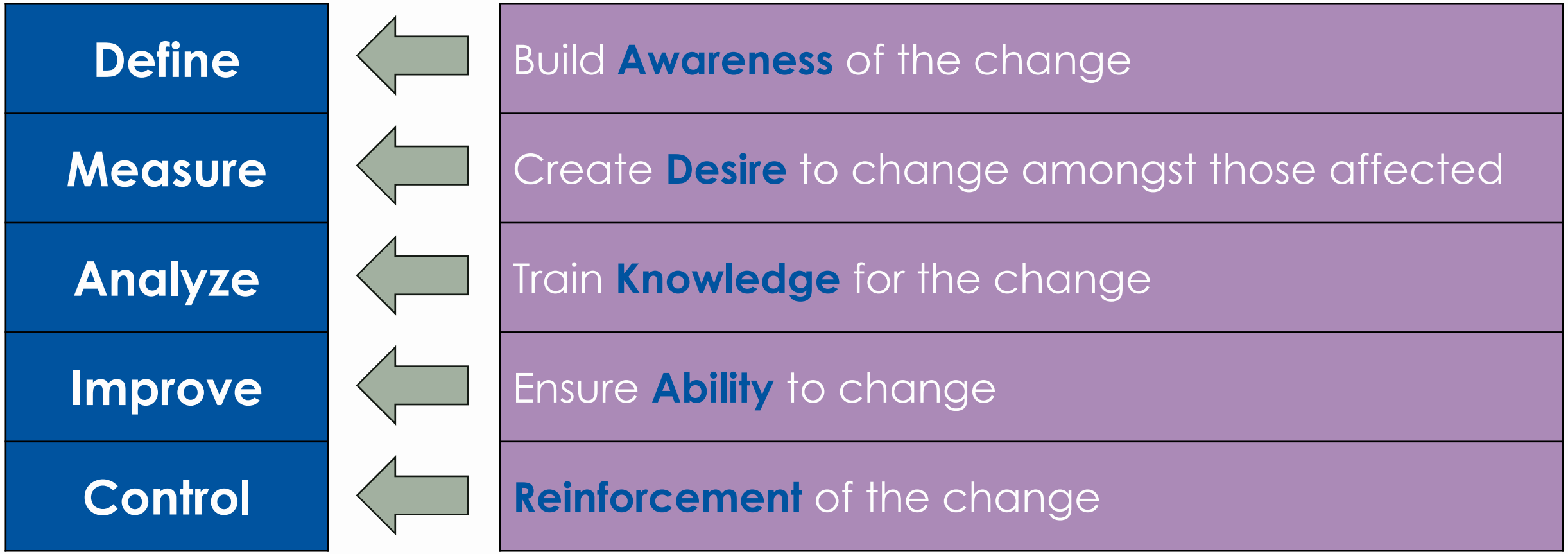
STEP 3
Stop the Workflow to Find the Root Cause of Problems

- Create systems that trigger action when abnormalities appear
- Initiate culture change
- Create a centralized focal point/team to resolve problems quickly and collaboratively

STEP 4
Eliminate Waste and Work on a Small Scale

- Apply Just-In-Time principles: produce only what's needed, when it's needed
- Focus on a basic tool box
- Implement gradually to balance workloads and reduce overproduction
- Break work into smaller batches to match team capacity with demand

Using CM With Lean

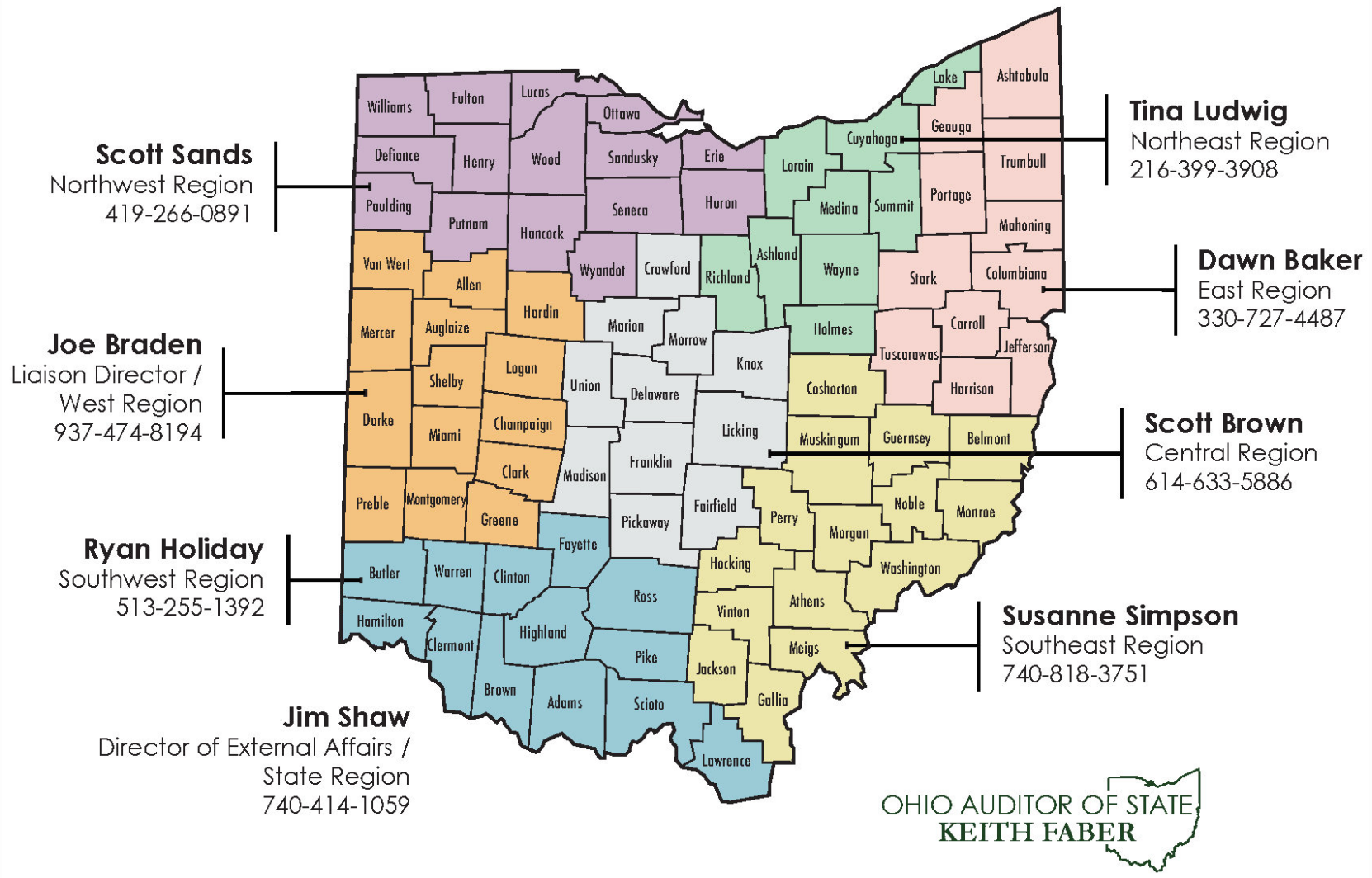


Lean Resources

More Lean Resources

- https://dspace.mit.edu/bitstream/handle/1721.1/81904/PRD_LESAT_Fac._Guide_2001.pdf
- https://www.lean.org/events-training/forms-templates/
- https://www.lssa.eu/en/resources/templates/
- https://mep.utah.edu/6-things-i-wish-id-known-at-the-start-of-my-lean-journey/
- https://businessmap.io/blog/lean-process-improvement
- https://6sigma.com/lean-six-sigma-news-army-aviation-improve-mission-environmental-operations
- Lean Six Sigma Templates | GoLeanSixSigma.com
- Continuous Improvement Toolkit – Welcome to CIToolkit!
- Free Lean Guides – Industrial Lean News

AOS Regional Liaisons



Questions?

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