SOLVE Guide

Colorado's Approach to Lean Process Improvement

Version 0.1

Table of Contents

- Part I: Introduction to Lean in Colorado and the SOLVE Guide (page 3)
  - Lean Streamlines Processes
  - Lean in Action
  - SOLVE—Colorado's Lean Problem-Solving Approach
  - Two Approaches to SOLVE
- Part II: Simple SOLVE for front-line issues (page 9)
- Part III: Structured SOLVE for strategic issues (page 14)
- Part IV: Tool Overviews (page 25)
- Part V: Appendix (page 85)
  - Colorado's Lean Journey
  - Role Expectations
  - Myth Busting

PART I: Introduction

An introduction to Lean in Colorado and the SOLVE Guide

An Introduction to the SOLVE Guide

Purpose

Everyone working for the State of Colorado has a job to do. *What* you do is a vital part of making state government work for the citizens of Colorado. Process improvement is all about *how* you do the job you do. SOLVE is Colorado's method of Lean problem solving that helps you streamline work processes that have become inefficient so that you have more time and resources to perform the tasks that really matter to our customers.

This SOLVE Guide is designed to help you properly diagnose process problems and discover the best tools to implement impactful solutions. No matter how big or small your Lean project may be, this step-by-step guide will walk you through each phase of problem-solving. The guide will steer you to the right tools and offer tips on best practices for Lean process improvements.

SOLVE is for Everyone

Regardless of your role and experience with Lean, or the size of the problem you are tackling, SOLVE will be a useful framework to follow.

If you are…	**…then SOLVE will help:**
A Lean Champion	• Build the problem solving skills of your agency's staff • Engage more people in process improvement
A Manager or Project Leader trained in Lean	• Ensure your problem solving balances rigor with practicality • Guide your teams step-by-step through problem solving
New to Process Improvement	• Identify problem opportunities in your workplace • Learn tools that help you address these issues

This guide also offers links to additional resources and common pitfalls for Lean projects in state government, making the SOLVE Guide useful no matter where you are on your Lean journey.

Lean Streamlines Processes

What is Lean?

Lean is a powerful process improvement tool that was originally developed in the private sector by the Toyota Production System to eliminate waste in manufacturing.

Colorado formally began utilizing Lean in 2011. In the first 5 years, employee teams executed hundreds of projects, streamlining processes and saving immeasurable time and resources for our employees and our customers.

Colorado's SOLVE Guide builds upon these lessons learned with refined techniques to help state government workers identify and eliminate process inefficiencies. Lean tools help us simplify our processes so that we spend more time on the things that make a difference to our customers—and less time on the frustrating tasks that consume our time but yield few results.

Lean Delivers Speed and Quality by Eliminating Waste

We have defined 8 wastes that are commonly found in state governments. They consume our time and resources, but don't improve our product or service for our customers. They can be remembered by the memory aid WASTEFUL:

Waiting	When the process stops
Approvals	Signatures or approvals that don't improve the product or service
Silos	Handoffs between people and organizations
Transportation	Any movement of paper or people (motion)
Errors	Things not done right the first time; requires rework
Failure to Prioritize	Working in crisis mode because "everything is important"
Underutilized Talents	Not using all of an employee's skills
Lack of Standards	The absence of standard methods and targets

What wastes do you recognize in your workplace?

Lean in Action

How does Lean work?

The Lean process works best when teams of employees engage on issues that are meaningful to our customers and to us.

Below is an example of what the process looks like in action:

Jane has an idea to improve her process.

She **Scopes the Opportunity** with her manager & Lean Champion. They **Organize the resources** and communicate to the others in the Department.

A cross-sectional team gets together to **Lean It!** (identify waste and root cause).

The team brainstorms and prioritizes the solutions into an actionable pilot and implementation plans, then they **Verify the Impact** of the pilot.

SUCCESS
1
2
3
4
5

The team deploys the improvements across the department and **Ensures Sustainment** by creating a sustainment checklist & communicating to reduce resistance.

The process owner continues to monitor performance and document lessons learned as a means of continuously improving the process.

The SOLVE Model

The 5-Step SOLVE Model

Our State of Colorado employees are professionals who care deeply about the people they serve. They want to address the issues that get in the way of great service—they want to SOLVE problems.

SOLVE is Colorado's 5-step common-sense approach to understanding problems and doing something about them. SOLVE doesn't replace what you already know about process improvement. This approach offers us a consistent method, a common language, and a flexible toolkit so that we can work together to make things better.

Here are the steps, along with some common sense advice:

S Scope the Opportunity	**Objective:** Define the problem to be solved *"Before we fix anything, we better have a clear understanding of the problem(s)."*
O Organize the Resources	**Objective:** Make a plan and engage the right people *"We will get a better solution if we work together and follow a rapid but disciplined process."*
L Lean it!	**Objective:** Apply Lean tools to define potential solutions *"Figure out which of the issues are the important ones (the root cause, not the symptoms) and how we can address them."*
V Verify the Impact	**Objective:** Test to make sure our fixes work *"Conduct a test to confirm that our planned changes work as desired and to gather feedback from others."*
E Ensure Sustainment	**Objective:** Make it stick *"Follow through to make sure the improvements last so we don't have to fix the same problem twice."*

Two Approaches to SOLVE

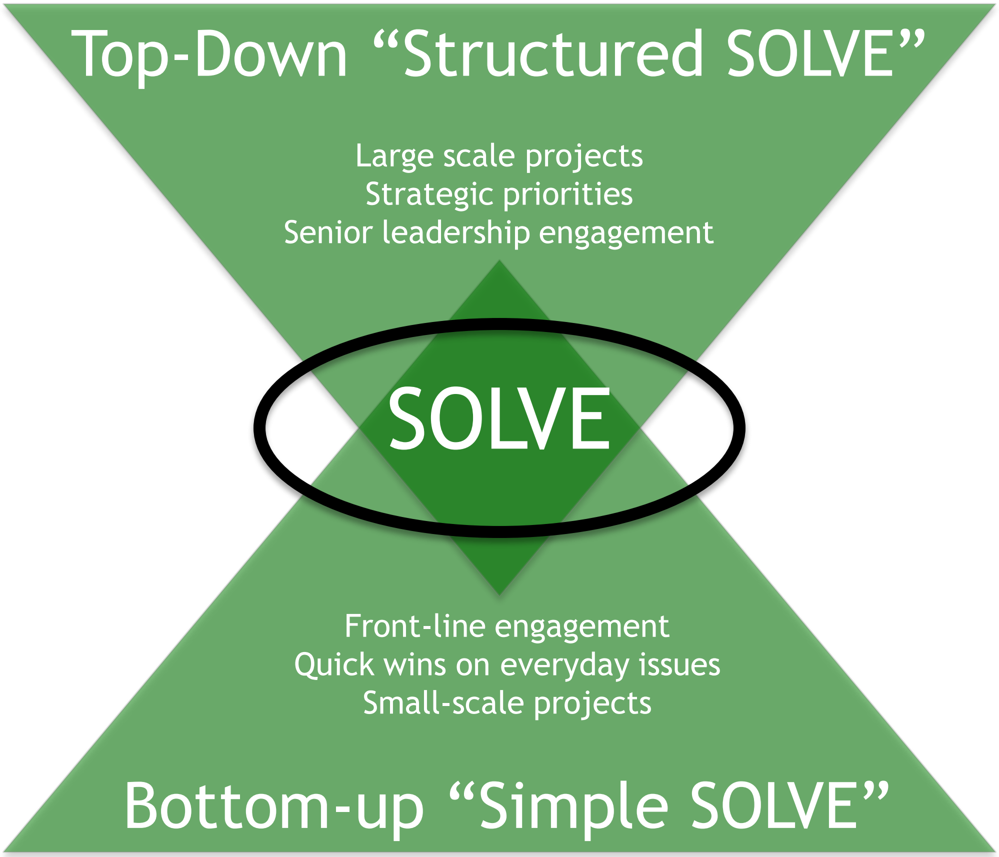
The Process Improvement Imperative

The SOLVE framework can be applied to any type of process improvement project, no matter how big or small. Both are an important part of process improvement in Colorado.

There are two ways to apply SOLVE: top-down and bottom-up. Pick the right approach to ensure that your Lean efforts deliver lasting benefits with the least effort possible.

A **top-down "Structured SOLVE" (page 14)** approach is used for process improvement projects that touch on major strategic priorities for the state or the department and require senior leadership, including:

- Cross-division or cross-agency efforts that require engaging multiple stakeholders
- Projects relating to a department's Strategic Policy Initiative (SPI), major goals, or performance plan outcomes


Top-Down "Structured SOLVE"
Large scale projects
Strategic priorities
Senior leadership engagement
SOLVE
Front-line engagement
Quick wins on everyday issues
Small-scale projects
Bottom-up "Simple SOLVE"

A **bottom-up "Simple SOLVE" (page 9)** approach can be applied to process improvement efforts that engage front-line employees or state workers at any level who have identified an improvement to be made; these projects can include:

- "Quick win" projects that relieve front-line pain points and don't cross boundaries
- Small-scale projects that require a small team of a few people to work out process improvement solutions and implementation of those ideas

PART II: Simple SOLVE

A common-sense approach for addressing everyday problems

Simple Solving Guidance

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

Overview

SOLVE is a 5-step framework that uses Lean concepts and employee know-how to efficiently solve problems related to process flow, service quality, and capacity.

This simple SOLVE approach is appropriate for smaller issues and those that are within your control.

Instructions

1. Identify a waste-based issue or problem to address by reviewing the next page.
2. Utilize the template on page 12 to follow the 5-step SOLVE approach, starting by defining the problem.
3. Use the checklist on page 13 to:
    - Confirm you've met the intent of each SOLVE step
    - Identify some potential tools to help you along the way
4. If you are unsure of how to proceed, contact your department Lean Champion.

Some Better Practices

- Determine who your customer is and engage with them
- Talk to the operational leader over the area to confirm the issue is meaningful to the operation and to get their take on potential solutions.
- Ensure that you clearly define the problem and keep to those things within your control—no "boil the ocean" problems.
- Reduce large problems into smaller, actionable problems to solve.
- Balance rigor with a bias for action—don't let perfect get in the way of better.
- Work with your coworkers and your manager to pragmatically define the solutions before implementing them.
- Use this framework to guide your decisions and validate you are making meaningful improvements.
- Success is improving the core measure(s), not using a bunch of tools.

Identifying Opportunities

Where Should You Start?

Knowing where to start can be challenging. Below are three sources of Simple SOLVE opportunities. You can use these questions to identify places to start:

- **Engage with your customers:** What do your customers want from you and what gets in the way of you serving them?
- **Observe your process:** When you follow the process, what wastes do you see (errors, handoffs, waiting, etc.) that you can address today?
- **Take a hard look at your workplace:** What changes can you make to set up the environment for success by reducing or eliminating waste?

WASTEFUL is a device that helps you identify 8 of the most common inefficiencies in state government operations. Do you recognize any of these wastes from your workflow?

	What you might observe:	**What you might hear:**
Waiting	When the process stops	*“I know it’s urgent, but I’m waiting on …”*
Approvals	Approvals or inspections that don’t improve the product or service	*“We have checkers checking the checkers”*
Silos	Handoffs between people and organizations	*“I don’t know how the whole process works, only my piece”*
Transportation	Any movement of paper or people (motion)	*“I spend a lot of my time walking just to get my job done”*
Errors	Things not done right the first time; requires rework	*“I find mistakes all the time, and sometimes our customers do”*
Failure to Prioritize	Working in crisis mode because “everything is important”	*“It’s hard to know what needs to be done first.”*
Underutilized Talents	Not using all of an employee’s skills	*“We’ve always done it this way, but it doesn’t seem logical”*
Lack of Standards	The absence of standard methods and targets	*“Everyone does it differently so it’s hard to improve”*

Let’s get going!

Simple Solving Template

Process Name:	**SOLVE Owner:** **Date:**	
Scope the Opportunity *Define the problem to be solved*		
Organize the Resources *Make a plan and engage the right people*		
Lean it! *Apply Lean tools to define potential solutions*		
Verify the Impact *Test to make sure our fixes work*		
Ensure Sustainment *Make it stick*		
Signatures	Agreement to Test Potential Solutions ____________________ ____________ Sponsoring Manager Date	Agreement To Implement Improvements ____________________ ____________ Sponsoring Manager Date

Checklist on next page

15-Point Simple SOLVE Checklist

SOLVE Step	Activity Checklist and Helpful Tools
Scope the Opportunity	☐ I know who the customer (end user) is for the process and where the process begins and ends. *Need help? See* **Boundary Map (SIPOC)** *on page 39.* ☐ I have clearly stated the situation and why is this opportunity is important to the organization & our customer. *Need help? See* **Problem Definition** *on page 32.* ☐ I know what measurement we are trying to improve and have data showing how we are performing now. *Need help? See* **Lean Measures** *on page 34.*
Organize the Resources	☐ I know whose help I will need to solve the problem, what roles they will play (data gathering, management support, etc), and how much time I'll need. *Need help? See* **Lean Roles** *on page 43.* ☐ I have a plan for raising awareness of the effort among the people involved. *Need help? See* **Communication Plan** *on page 47.*
Lean it!	☐ I have documented the process steps and who executes them. *Need help? See* **Process Map** *on page 51.* ☐ I have identified waste in the process and know how to eliminate/reduce it. *Need help? See* **8 Wastes** *on page 53.* ☐ I know the factors are affecting the measurement and which factors are significant (will make the greatest impact). *Need help? See* **Root Cause Analysis** *on page 57* or **Pareto Analysis** *on page 61.*
Verify the Impact	☐ I have developed solution options and know which one(s) I would like to test. *Need help? See* **Option Evaluation** *on page 67.* ☐ I have tested my potential solution(s) and gathered data to measure the impact. (before v. after) *Need help? See* **Pilot (or Test) Plan** *on page 69.* ☐ I have defined the improvement to implement and the actions to be completed. *Need help? See* **Implementation Plan** *on page 71.* ☐ I have a plan to update affected people on the change AND a plan for managing any resistance to the change. *Need help? See* **Communication Plan** *on page 47 and* **Resistance Management** *on page 73.*
Ensure Sustainment	☐ I have documented the new method. *Need help? See* **Standard Work** *on page 77.* ☐ I know what actions we must take to ensure that the changes last. *Need help? See* **Sustainment Checklist** *on page 81.* ☐ I have documented my lessons learned and identified other areas we could work on to continue improving. *Need help? See* **After Action Review** *on page 83.*

PART III: Structured SOLVE

A 5-step process for addressing strategic issues

Step 1: Scope the Opportunity (1 of 2)

Define the problem to be solved

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

Purpose and Importance

The Scope step in the process is where we define the problem to be solved. This can be simple, or much harder than it seems.

It is critical that we 1) work on problems that are important, 2) diagnose the "real" issue(s) at hand, 3) have a good understanding of what "better" means, and 4) attack the problem at the right level of detail. Without this clarity, we can waste time on activities that do not benefit ourselves or our customers.

Relevant Tools

Tool	Description
Problem Definition *Page 32*	A 4-question guide for ensuring you have defined the problem precisely
Lean Measures *Page 34*	Metrics that can be used to define current performance and desired performance
Voice of the Customer *Page 36*	Methods to gather customer and employee insights; interviews provide qualitative insights while surveys are used to establish quantitative insights
Boundary Map (SIPOC) *Page 39*	This is the highest level of process map and establishes the major steps, customers, inputs and outputs
Lean Project Scope Sheet *Page 41*	A document that describes the situation, targeted outcomes, success measures, & required resources

Note: This list is not exhaustive. You may wish to apply other tools during this step to identify and prioritize projects.

Guiding Questions

- What is the situation and why is this opportunity important to your organization?
- Who is the customer for the process and what is the "pain" they are experiencing?
- What is the extent or magnitude of the problem? For how long?
- Which measure(s) are we trying to improve & what is the current baseline?
- How does this problem impact the Department's/Division's strategic plan?
- What are the specific outcomes we expect with improvement (that is, what will be different for the organization or customers in the future)?
- Are we attacking the problem at the right level of detail?

Step 1: Scope the Opportunity (2 of 2)

Define the problem to be solved

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

Activity Checklist—Scope the Opportunity

Activity	Completed
1. The project has been effectively titled using a verb (what we want to do) + noun (what do we want to impact or improve?)	☐
2. The current situation has been described, including the perceived issues	☐
3. The process' internal and/or external customers have been identified and consulted	☐
4. Process boundaries have been clearly defined	☐
5. Process measurement(s) has (have) been established to visually display current performance, trends and track the impact of future improvements	☐
6. The targeted outcomes and deliverables for the project have been defined	☐

Pearls and Pitfalls

- *Go Slow to Go Fast:* Each organization has an abundance of improvement opportunities that can be addressed with a little attention, action, and follow through. However, some require a more structured, comprehensive approach. Use the criteria on page 8 of this guide to choose the right path.
- *Listen to Your Customers:* Improving performance requires a strong understanding of what is important to your customer. Every work unit has a combination of internal and external customers (end users). It is the external customers who determine what constitutes value in the process.
- *Establish Clear Boundaries and Success Measures:* Processes that are best improved occur frequently enough to be observed and documented. Change agents should establish clear process boundaries and assure that success is measured (e.g., time savings, quality, speed).

Step 2: Organize the Resources (1 of 2)

Make a Plan and Engage the Right People

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

Purpose and Importance

The Organize step identifies the individuals impacted by this process, from the manager to frontline leaders to the customer, and ensures that there is a plan to engage them in the process. Some people will be directly involved in the SOLVE work while others simply must be informed of the effort. Roles and responsibilities are established during this step and it is also the process where we plan for group problem solving activities.

Relevant Tools

Tool	Description
Lean Roles *Page 43*	Clarifies attributes and responsibilities for each of the critical roles
Making the Case for Change *Page 45*	Approaches to clearly articulating why change is necessary to affected personnel
Communication Plan *Page 47*	Identifies the audience(s), key message(s), method, timing, frequency and person responsible for communicating
Problem Solving Session *Page 49*	Helps plan how you will engage team members and the logistic requirements for group problem solving

Guiding Questions

- Who is impacted by this problem and solution?
    - What role and responsibility will they have in solving this problem?
    - How can we best communicate the effort's purpose to them?
    - Who are key influencers who can impact the outcome and how can you reach them?
- Who is the operational manager that oversees this area?
    - Is s/he on-board with solving this problem?
    - Has s/he agreed to actively participate or support the implementation of the solution?
- How will we engage the team in group problem solving efforts?
    - How many sessions and with what objectives and agenda?
    - What pace of involvement moves the project along without causing stress on the organization?

Step 2: Organize the Resources (2 of 2)

Make a Plan and Engage the Right People

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

Activity Checklist—Organize the Resources

Activity	Completed
1. Executive Sponsor identified and coached regarding resource requirements and their role	☐
2. Project Leader identified and coached regarding implementation ownership, metric definition, and project team requirements	☐
3. Core Team Members selected that, together, have complete knowledge of the process and issues	☐
4. Extended Members selected and are available to provide expertise, data and insights during the project	☐
5. Lean Champion/Facilitator identified who has sufficient knowledge and experience for the scale of the project	☐
6. Project Scope Sheet finalized, now including the name of all team members and a plan for all group activities (core team and, if required, steering committee)	☐
7. Communication Plan created and messages drafted, notifying the organization of the project and the participants of the expectations and timing	☐

Pearls and Pitfalls

- *Communicate, Communicate, Communicate:* Take the time to define the "why" before you explain the "what". Deliver a consistent message through multiple communication channels (e.g., meetings, newsletters), creating opportunity for dialogue rather than just information sharing.
- *Engage those that Can, Care, and Know:* Lean is unique in its egalitarian views. Members from all levels of the organization, representing differing functions and departments come together to give experience and expertise in attacking the opportunity.
- *Employ Influencers:* There are people whose titles do not reflect their stature in the organization. Identify these people and enlist their support for the effort. Others may look to these "informal leaders" for information, so make sure they have it.
- *Plan Group Work Carefully:* Balance the pace of group sessions. Multi-day sessions advance concepts quickly, but they can also cause stress on the operation and don't always provide for in-process engagement of others in the workplace. Several shorter sessions may be preferred.

Step 3: Lean It! (1 of 2)

Apply Lean Tools to Identify Potential Solutions

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

Purpose and Importance

The Lean It! step is the point in the SOLVE method where employee teams use Lean tools to identify and address waste. One or more group sessions are typically held to gain a common understanding of the process, raise awareness of the issues, and define potential solutions.

More important than any one particular Lean tool is that team zeros in on root causes of issues and identifies solutions that, together, make an impact on the problem (core success measures).

Relevant Tools

Tool	Description
Process Map *Page 51*	A graphical representation of the steps in the process; can be enriched with data to clarify the impact of current design on core measures
8 Wastes *Page 53*	The 8 wastes described in WASTEFUL help teams and individuals acknowledge ways to eliminate or reduce activities that don't add value (see page 55)
Root Cause Analysis *Page 57*	Methods for sorting through symptoms to get to the true cause of issue and errors
Check Sheet *Page 59*	A practical method for gathering process data when none exists
Pareto Analysis *Page 61*	A graphical way to view the occurrence of certain factors, like errors, to understand which are crucial
5S *Page 65*	A process for workplace organization, removing unnecessary items and setting up the workplace for success

Note: This list is not exhaustive. You may wish to apply other tools during this step.

Guiding Questions

- What are the process steps and who executes them?
- What does the customer think is valuable?
- What waste exists and how will you address it?
- What is the root cause we are trying to solve?
- Which improvement(s) does (do) the team believe will make the difference?

Step 3: Lean It! (2 of 2)

Apply Lean Tools to Identify Potential Solutions

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

Activity Checklist—Lean it!

Activity	Completed
1. Customer-defined value has been identified and discussed	☐
2. Process steps and activities have been discussed, documented, and measured	☐
3. Process waste, complexity, and ambiguity have been identified and discussed	☐
4. Root cause determination has been discussed and deliberated	☐
5. Solution ideas that address waste and root cause have been generated	☐
6. Solution ideas have been evaluated (sized) and prioritized	☐
7. Appropriate Lean tools have been used	☐
8. Improvement strategies, tactics, and measures have been discussed and documented to prepare for testing (next step)	☐

Pearls and Pitfalls

- *Pursue Root Cause:* Using Lean tools to address the symptoms of the problem will not “solve” the problem; you must address the root cause.
- *Don’t Let Perfect Get in the Way of Better:* The team may identify solutions that are technically better but are not accepted or agreed upon. Reach consensus to test certain improvements. 80% of the value today is better than 100% sometime!
- *Lean Tools ≠ Lean Organization:* A Lean organization is more than a set of tools, it is a way of thinking – a cultural change. Tools raise awareness but don’t stop there. Recognize that our goal is to *continually* make things better for our customers and employees, so keep people engaged and look for opportunities for the next round of improvement.

Step 4: Verify the Impact (1 of 2)

Test to Make Sure Our Fixes Work

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

Purpose and Importance

Verify the Impact is the step in the SOLVE process where we measure the impact of our proposed solutions. Our goal is to validate that the solutions work as planned and/or learn what we must do to ensure that they do.

This step is your opportunity to engage people in refining the solutions, to broaden your audience and engage people in making the effort a success. You may encounter resistance, but don't stop or avoid it. Resistance is usually just an unmet need, so engage to learn the root cause of resistance and work to overcome it.

Relevant Tools

Tool	Description
Option Evaluation *Page 67*	A practical method to determine which of your potential solutions has the best likelihood of success
Pilot (or Test) Plan *Page 69*	A small-scale, short-term experiment to test the improvements work prior to a full deployment
Implementation Plan *Page 71*	Identifies the tasks/steps needed to implement the solution including who is responsible and by when
Resistance Management *Page 73*	Proactively identifies and mitigates potential causes of resistance where possible and includes a plan to respond to expected or unforeseen barriers

Guiding Questions

- Which solution options are you going to pilot or test?
- What data will you gather to measure the impact? How?
- Who is going to monitor the measurement and results?
- Have you updated your communication plan to prepare people for the pilot? Are there new audiences or messages?
- Based on what you learned during the pilot:
  - Who is going to do what to implement your solution (the implementation plan)?
  - What are additional improvements you can make before deploying?
- Have you identified and mitigated potential resistance?

Step 4: Verify the Impact (2 of 2)

Validating the Improvements Worked

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

Activity Checklist—Verify the Impact

Activity	Completed
1. A pilot (test) plan has been built with clear ownership of data collection and monitoring	☐
2. The communication plan has been updated and completed to alert personnel of the test plan and their role	☐
3. A resistance management plan exists and actions have been taken to mitigate and respond to resistance	☐
4. The pilot has been executed and small changes made; observation and analysis confirm process is stable	☐
5. When compared to baseline performance, key process measures have improved (time spent, quality, speed, customer satisfaction)	☐
6. Tested improvements have eliminated the root cause of the problems	☐
7. Improvements have been implemented with effective Lean Project Leader oversight and according to milestones	☐

Pearls and Pitfalls

- *Beware the Conference Room Solution:* Some things look good on paper but don't translate to the real work environment. Be humble in your testing plan, making sure that you build in time to make in-process adjustments required to fine tune the solution.
- *Communicate, Again:* Make sure to update your communication plan to help prepare impacted persons in the workplace for the pilot effort. Test for comprehension through dialogue. The success of your solution may depend upon them following the plan, so invest time to ensure they are well prepared.
- *Anticipate Push Back:* Failure to address the people side of the change, will results in resistance to the adoption and use of the improvements. Instead, engage to understand the nature of the resistance. You may be able to accommodate feedback into an even better solution.
- *Be Realistic:* Develop an implementation plan that acknowledges other priorities in the workplace. Gain project leader and sponsor approval to both test solutions and implement plans to avoid uncertainty and frustration.

Step 5: Ensure Sustainment (1 of 2)

Make it Stick

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

Purpose and Importance

The Ensure Sustainment step is where we act to maintain the gains made during the first 4 steps of the SOLVE process. Without cementing the improvements, all the effort of the project may be wasted.

You must have split vision, though, in that this is also the time when we capture our lessons learned and set the stage for the next round of improvements.

Relevant Tools

Tool	Description
Visual Management *Page 75*	Presenting information in a way that allows at-a-glace understanding
Standard Work *Page 77*	Foundation of Lean that uses a lot of visuals (vs. text) to establish the best method and sequence for a process
Short Interval Management *Page 79*	Physical or electronic displays that present a visible snapshot of process performance, gather data on issues, and identify opportunities for improvement
Sustainment Checklist *Page 81*	A document that ensures implementation is complete and monitoring continues post implementation
After Action Review (AAR) *Page 83*	A 4-question process that provide a high-level gap analysis of what was expected to happen and what actually occurred, and leverages what is working as well as identifies what can be improved

Guiding Questions

- What actions are needed, and who needs to be involved, to sustain the improvement(s)?
    - How often will we review data to ensure continued performance?
    - Who will tour the workplace to engage with staff and learn additional ways we could improve?
- How did the outcomes of the project compare with what you predicted going in?
- What value does your project bring to your operation and your customers?
- What lessons did you learn during this project?
- How can you continue to improve?

Step 5: Ensure Sustainment (2 of 2)

Make it Stick

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

Activity Checklist—Ensure Sustainment

Activity	Completed
1. Standard work materials are kept up to date and reflect best known methods	☐
2. Process measurements are current and confirm ongoing improvement, and issues are identified and addressed	☐
3. Performance boards, if created, are kept up to date and used at short intervals (daily or weekly) by both the staff and managers involved in the process	☐
4. Resistance to change has been effectively mitigated and the improvements are working	☐
5. Lessons learned have been captured via an After Action Review and acted upon	☐
6. Plans for ongoing improvement refinement and next steps have been discussed and determined	☐

Pearls and Pitfalls

- *Practical Standard Work: S*tandard work is not like traditional, dense procedure manuals. Strive for simple, visual instructions that address 80% of the need and can be improved as the process evolves.
- *Make Performance Visible:* Consider building a performance board with measures taken on intervals short enough to “course correct” before we disappoint a customer. Be careful, though: If time is spent creating a performance board but no one uses it, frustration and failure may ensue.
- *Waste Walk:* Trust but verify – if you don’t observe the work being performed, individuals may not be using the new process or improvements. In addition, you’ve lost a valuable opportunity to identify future improvements.
- *Learn Your Lessons:* Capture lessons learned, including your mistakes and failures, so that your future projects run more smoothly and as a way of advancing your culture of continuous improvement.

PART IV: Tool Overviews

2-page overviews on valuable Lean tools

The SOLVE Toolkit (1 of 2)

It's NOT about the Tools (and it's ALL about the tools)

We have adapted standard Lean methods to meet our needs and adopted best practices from many departments to create the SOLVE toolkit.

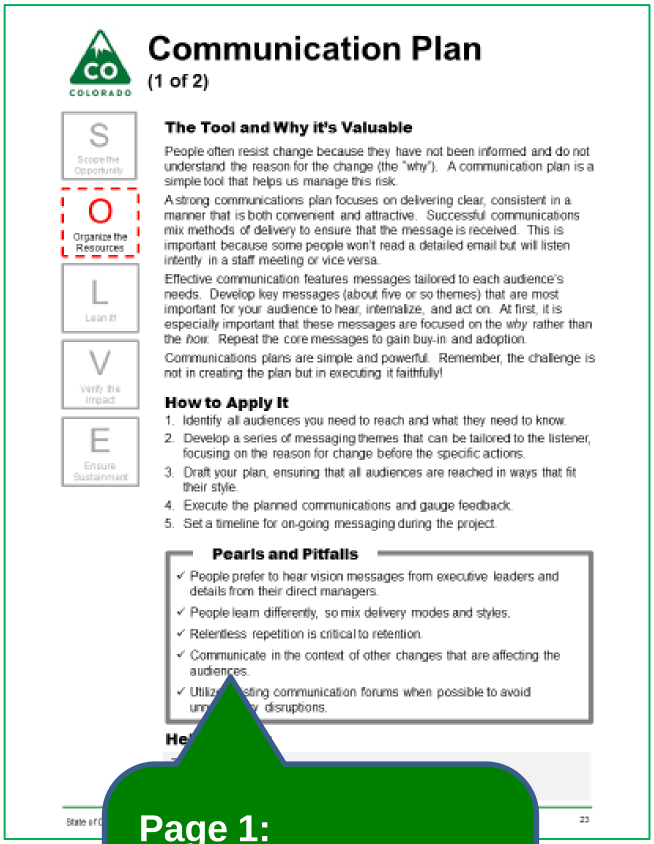
The tools help add rigor to our problem solving, offering us ways to engage people in clarifying issues, understanding options, and measuring impact. For these reasons, tools are important.

MORE IMPORTANT than the tools, however, is that gain support for what we're trying to do and that we move quickly to TRY things. We want Efficient, Effective, and Elegant problem solving, so select the tools that help you get to a simple (elegant) solution that improves performance (effective) with the least effort (efficient).

Feel free to innovate and have a bias for action. We learn by doing, so get out there and do it!

Tool Overviews

There is a vast toolkit to help you execute SOLVE steps. For each tool, a 2-page overview an example is available in this guide.



Communication Plan

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

People often resist change because they have not been informed and do not understand the reason for the change (the "why"). A communication plan is a simple tool that helps us manage this risk.

A strong communications plan focuses on delivering clear, consistent in a manner that is both convenient and attractive. Successful communications mix methods of delivery to ensure that the message is received. This is important because some people won't read a detailed email but will listen intently in a staff meeting or vice versa.

Effective communication features messages tailored to each audience's needs. Develop key messages (about five or so themes) that are most important for your audience to hear, internalize, and act on. At first, it is especially important that these messages are focused on the *why* rather than the *how*. Repeat the core messages to gain buy-in and adoption.

Communications plans are simple and powerful. Remember, the challenge is not in creating the plan but in executing it faithfully!

How to Apply It

1. Identify all audiences you need to reach and what they need to know.
2. Develop a series of messaging themes that can be tailored to the listener, focusing on the reason for change before the specific actions.
3. Draft your plan, ensuring that all audiences are reached in ways that fit their style.
4. Execute the planned communications and gauge feedback.
5. Set a timeline for on-going messaging during the project.

Pearls and Pitfalls

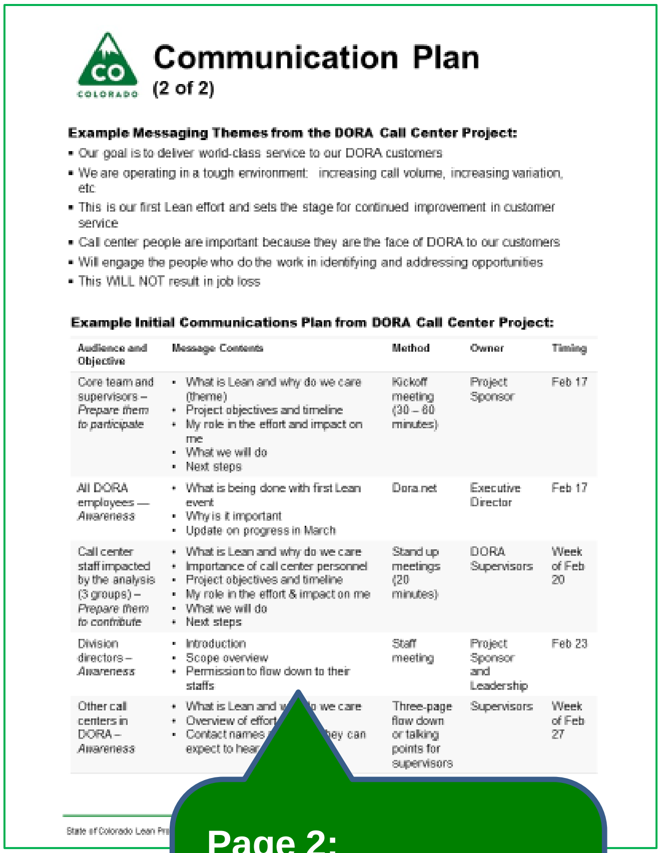
- ✓ People prefer to hear vision messages from executive leaders and details from their direct managers.
- ✓ People learn differently, so mix delivery modes and styles.
- ✓ Relentless repetition is critical to retention.
- ✓ Communicate in the context of other changes that are affecting the audiences.
- ✓ Utiliz sting communication forums when possible to avoid unn y disruptions.

He

State of C

23

Page 1:
- Which SOLVE step
- Overview
- How to apply it
- Wisdom & links



Communication Plan

(2 of 2)

Example Messaging Themes from the DORA Call Center Project:

- Our goal is to deliver world-class service to our DORA customers
- We are operating in a tough environment: increasing call volume, increasing variation, etc
- This is our first Lean effort and sets the stage for continued improvement in customer service
- Call center people are important because they are the face of DORA to our customers
- Will engage the people who do the work in identifying and addressing opportunities
- This WILL NOT result in job loss

Example Initial Communications Plan from DORA Call Center Project:

Audience and Objective	Message Contents	Method	Owner	Timing
Core team and supervisors – *Prepare them to participate*	• What is Lean and why do we care (theme) • Project objectives and timeline • My role in the effort and impact on me • What we will do • Next steps	Kickoff meeting (30 – 60 minutes)	Project Sponsor	Feb 17
All DORA employees — *Awareness*	• What is being done with first Lean event • Why is it important • Update on progress in March	Dora.net	Executive Director	Feb 17
Call center staff impacted by the analysis (3 groups) – *Prepare them to contribute*	• What is Lean and why do we care • Importance of call center personnel • Project objectives and timeline • My role in the effort & impact on me • What we will do • Next steps	Stand up meetings (20 minutes)	DORA Supervisors	Week of Feb 20
Division directors – *Awareness*	• Introduction • Scope overview • Permission to flow down to their staffs	Staff meeting	Project Sponsor and Leadership	Feb 23
Other call centers in DORA – *Awareness*	• What is Lean and w o we care • Overview of effort • Contact names ey can expect to hear	Three-page flow down or talking points for supervisors	Supervisors	Week of Feb 27

State of Colorado Lean Pr

Page 2:
- Replicable example(s)
- Key points and/or tips

The SOLVE Toolkit (2 of 2)

Tools by SOLVE Step

Step	**Potential Tools**
Scope the Opportunity *Define the problem to be solved*	▪ Identifying Opportunities (page 28) ▪ Prioritizing Opportunities (page 30) ▪ Problem Definition (page 32) ▪ Lean Measures (page 34) ▪ Voice of the Customer (page 36) ▪ Boundary Map (SIPOC) (page 39) ▪ Lean Project Scope Sheet (page 41)
Organize the Resources *Make a plan and engage the right people*	▪ Lean Roles (page 43) ▪ Making the Case for Change (page 45) ▪ Communication Plan (page 47) ▪ Problem Solving Session (page 49)
Lean it! *Apply Lean tools to define improvements*	▪ Process Maps (page 51) ▪ 8 Wastes (WASTEFUL) (page 53) ▪ Value Add (page 55) ▪ Root Cause Analysis (page 57) ▪ Check Sheet (page 59) ▪ Pareto/ Analysis (page 61) ▪ Error Proofing (page 63) ▪ 5S (page 65)
Validate Impact *Test to make sure the fixes work*	▪ Option Evaluation (page 67) ▪ Pilot (or Test) Plan (page 69) ▪ Implementation Plan (page 71) ▪ Resistance Management (page 73)
Ensure Sustainment *Make it stick*	▪ Visual Management (page 75) ▪ Standard Work (page 77) ▪ Short-Interval Management (page 79) ▪ Sustainment Checklist (page 81) ▪ After Action Review (AAR) (page 83)

Identifying Opportunities
(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

Identifying and selecting the right project can be as important as how well a given project is executed. There are several effective methods of identifying potential projects. Five of the most popular sources include: conducting value stream analyses (VSAs) to identify waste, responding to customer feedback, furthering a strategic or operational plan, analyzing performance metrics, and responding to employee suggestions.

As Lean maturity increases, a natural evolution will be to identify projects linked to the organization's strategic or operational plan.

Once a list of potential projects has been created, they must be evaluated and prioritized. (See page 30 – Prioritizing Opportunities).

How to Apply It

1. Develop a project suggestion list by considering the five sources for improvement opportunities.
2. Prioritize ideas (see Prioritization for more information).
3. Sequence these projects and execute in order.

Note: Smaller improvements can be done using Simple SOLVE (page 9) while boundary-spanning and larger-scale projects will benefit from the rigor of the Structured SOLVE method (page 14).

Pearls and Pitfalls

- ✓ Mix tops-down (strategic) with bottoms-up (tactical) project selection to maximize impact.
- ✓ Create a portfolio of opportunities that address issues like speed, quality, customer satisfaction, etc. Don't expect each effort to impact all measures.
- ✓ Not all suggestions will be worthwhile Lean projects. After opportunities are identified they must be prioritized.

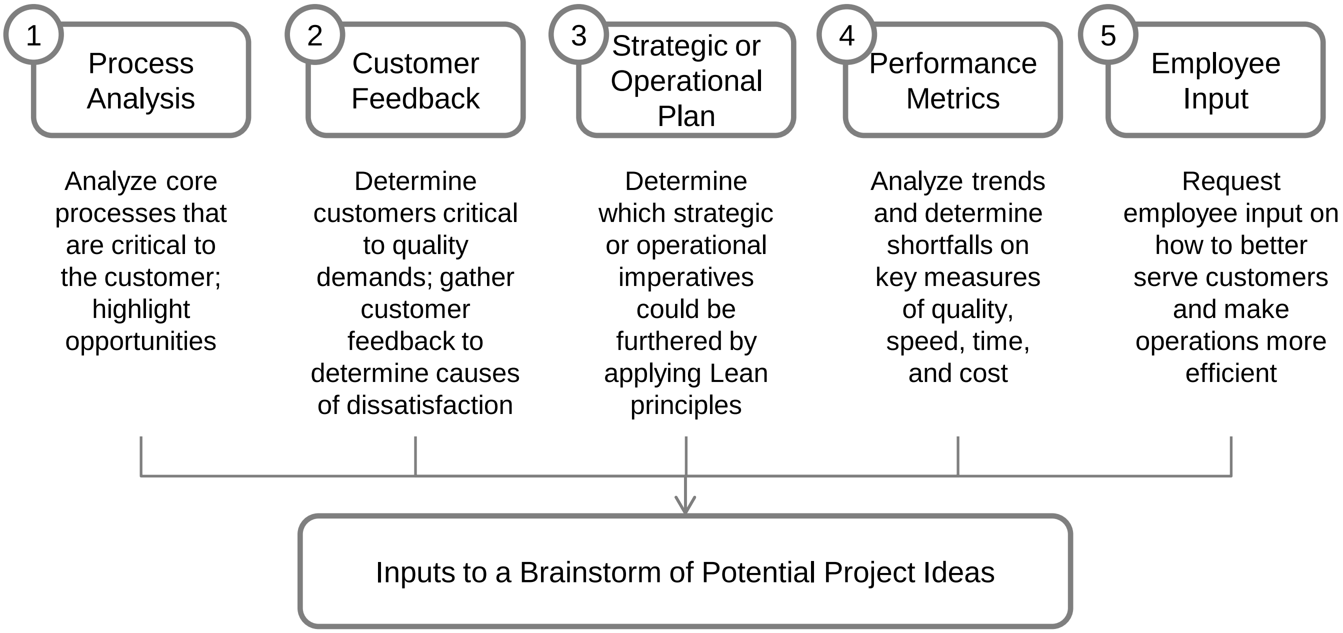
Helpful Links

Template:
Consider search words like:

Identifying Opportunities
(2 of 2)

5 Sources for Identifying Opportunities

Mining these five sources (and others) ensures a wide-ranging group of project suggestions that will improve both operational efficiency and customer service.

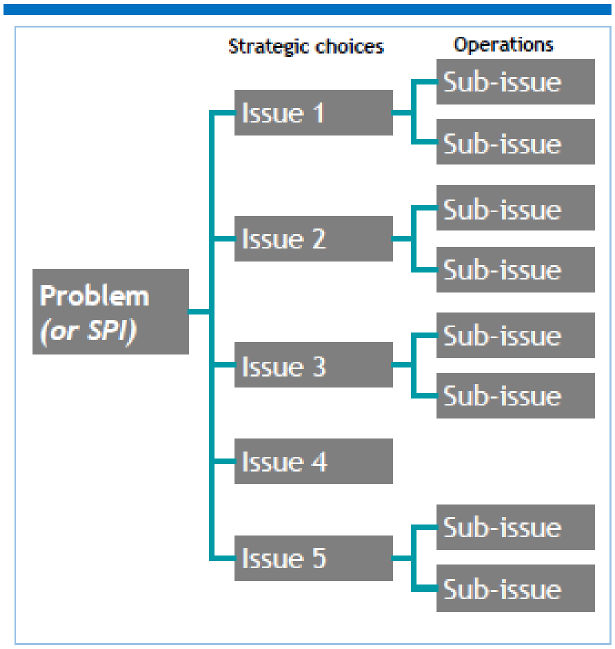


1. Process Analysis — Analyze core processes that are critical to the customer; highlight opportunities
2. Customer Feedback — Determine customers critical to quality demands; gather customer feedback to determine causes of dissatisfaction
3. Strategic or Operational Plan — Determine which strategic or operational imperatives could be furthered by applying Lean principles
4. Performance Metrics — Analyze trends and determine shortfalls on key measures of quality, speed, time, and cost
5. Employee Input — Request employee input on how to better serve customers and make operations more efficient

Inputs to a Brainstorm of Potential Project Ideas

Strategic Project Identification—SPI Logic Tree

This tool breaks a strategic policy initiative (SPI) into discrete chunks to identify the logical relationship between outcomes, strategies, operations, and processes. Lean projects can be targeted at the significant issues.


Strategic choices
Operations
Problem (or SPI)
Issue 1
Issue 2
Issue 3
Issue 4
Issue 5
Sub-issue
Sub-issue
Sub-issue
Sub-issue
Sub-issue
Sub-issue
Sub-issue
Sub-issue

Prioritizing Opportunities

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

Once a list of potential projects has been created, they must be objectively evaluated and prioritized. Prioritizing the number of projects being worked, helps to ensure that the requisite management support and resources are available.

Lean Champions should work with Department leaders to develop decision criteria for the scoring that will be used to prioritize the opportunities or projects. And, each criterion must have an appropriate weighting since not all are equally important.

Examples of decision criteria are: aligns with Department's strategic goals (SPIs), supports Governor's initiative, can be implemented in 3 months or less, will impact more than 1,000 customers.

How to Apply It

1. Rate ideas by placing them in a 2x2 matrix: impact vs. effort of implementation. This helps separate quick-wins from larger efforts.
2. Clarify the ideas in the high impact / low difficulty quadrant of the chart to ensure common understanding.
3. If further evaluation is needed, use a decision scorecard to compare ideas in terms of the chosen criteria.

Pearls and Pitfalls

- ✓ Failure to use objective criteria to prioritize projects will result in time spent on "pet projects" that may not have as great an impact as other projects.
- ✓ Share the completed weighted priority matrix to create transparency and communicate decisions.
- ✓ Ideally 4-6 criteria should be used; more can make the process unwieldy.
- ✓ If all criteria are weighted the same, there won't be a spread in the total scores.
- ✓ Being clear on the decision criteria will dramatically speed the scoring process.

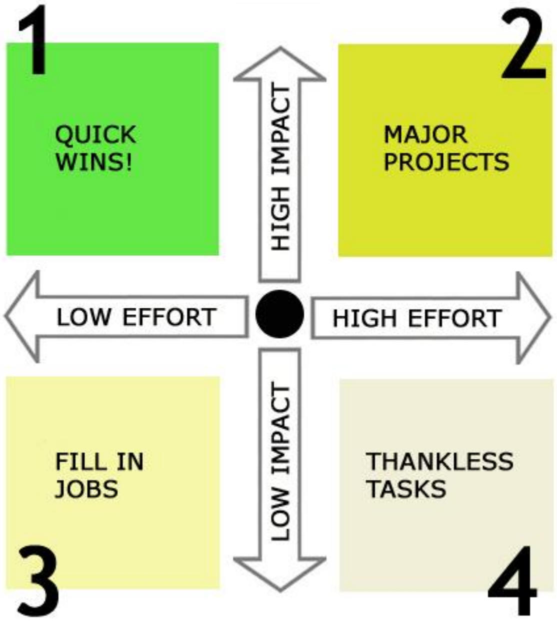
Helpful Links

Template:
Consider search words like:

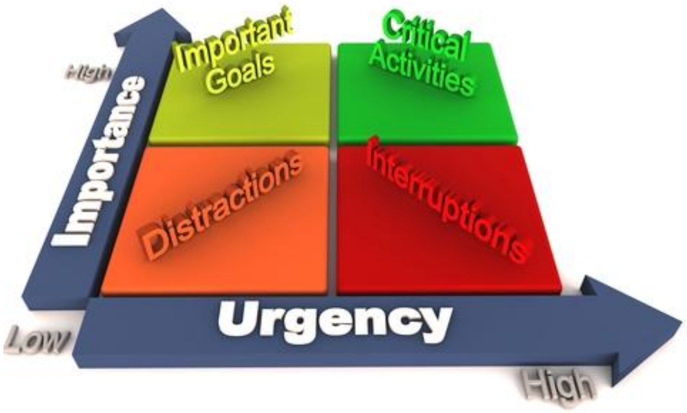
Prioritizing Opportunities

(2 of 2)

Example Impact/Effort Matrix


1
2
QUICK WINS!
HIGH IMPACT
MAJOR PROJECTS
LOW EFFORT
HIGH EFFORT
FILL IN JOBS
LOW IMPACT
THANKLESS TASKS
3
4

Example Important/Urgent Matrix


High
Importance
Important Goals
Critical Activities
Distractions
Interruptions
Low
Urgency
High

Example Weighted Priority Matrix (Lean Projects)

For more information download the template (insert hyperlink)

Decision Criteria:	Opportunity to delight customers	Source of employee pain	Aligned to Dept strategic plan	Can be implemented in 3 months or less	Reduces environmental impact		
Importance Score (1-5):	5	3	5	2	2		
Processes & Focus Areas	Table of Association Scores (1, 3, 9)					Weighted Score	
Grants Lifecycle							
Grant Proposal	1	9	9	3	9	101	High Priority
Grant Management	1	3	1	3	1	27	Low Priority
Grant Close-out	1	3	3	9	3	53	Med Priority
IT Services							
Help Desk	9	9	1	9	3	101	High Priority
PC Upgrade	3	3	1	1	9	49	Med Priority
PC Provisioning	1	3	1	1	3	27	Low Priority

Problem Definition

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

A well-defined problem is the focal point of your project and should be written with clear, concise language. This critical step helps ensure you mobilize the right resources and that you are working on a meaningful issue, not just an irritant. Writing a well-defined problem statement is the first step towards a successful project because a problem well-defined is half solved!

How to Apply It

1. Identify the consequences associated with not solving this issue
2. Confirm this issue has been around – it is not just a one-time occurrence
3. Write a clear, concise problem statement – not a solution statement. A good problem statement:
    1. Identifies the issue
    2. Includes supporting facts/data
    3. Identifies the impact the issue has on the organization
4. Know where the problem begins and ends – remember do not boil the ocean
5. For additional help, complete the checklist on the next page to confirm you have a well-defined problem

Pearls and Pitfalls

- ✓ If your problem statement tries to address several issues or problems, this will only cause confusion later and may be an indicator you are "boiling the ocean."
- ✓ If your problem statement contains the solution, you have short circuited the SOLVE model. Example of a solution statement: *We need to hire more FTE to staff the call center because the number of calls has increased.*
- ✓ Jumping into a project without confirming the problem could waste time and resources especially if it was a one-time occurrence or irritant.
- ✓ If you cannot clearly describe the problem, then you and others will struggle to solve it.

Helpful Links

Template:
Consider search words like:

Problem Definition

(2 of 2)

Problem Definition Checklist

Consider using the PROB checklist below to test your problem statement.

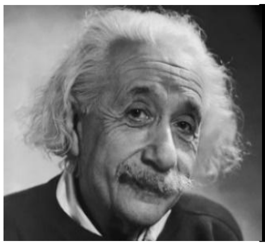
Does your problem statement conform?		
☐	P	**Pain:** I know the consequences of not addressing the issue (e.g. increased employee turnover due to overtime, lost funding)
☐	R	**Real:** This problem is not an anomaly; it has been acknowledged in the past by a number of people.
☐	O	**Obvious:** The importance of the problem is clear to all who read it, even if they are not familiar with the situation
☐	B	**Bound:** I know where the problem begins and ends.

If you are able to answers these questions, then you have a solid foundation for proceeding to **Scope the Opportunity.**

Examples

Poorly defined problem: *It takes forever for a contract to be executed*
Well-defined problem: *It takes an average of 150 days for a standard contract to go through our internal review and clearance process resulting in complaints from nearly 25% of our vendors.*

Poorly defined problem: *I had to rewrite the enrollment report 5 times this month.*
Well-defined problem: *For the past year, on average we rewrite the enrollment report 4 times each month, requiring 15 extra hours (which makes me want to look for another job).*



Albert Einstein once said, "*If I were given one hour to save the planet, I would spend 59 minutes defining the problem and one minute resolving it*."

A well-defined problem often contains its own solution, and that solution often is obvious and straightforward. By defining problems properly, you make them easier to solve, which means saving time, money and resources.

[Source: *Harvard Business Review*, "Are You Solving the Right Problem?" by Dwayne Spradlin, Sept. 2012]

Lean Measures

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

Lean measures are valuable because they establish how well the process is performing. Measures (or "metrics") can be used throughout the project lifecycle to establish a baseline and evaluate performance, measure the impact of an improvements, validate changes are sustaining, and to identify additional areas for improvements.

How to Apply It

1. Identify the purpose or objective for your measurement – e.g. reduce overall process time, improve customer satisfaction, reduce the number of errors, etc.
2. Confirm you have data available for your metric – e.g. if you want to measure customer satisfaction but have no survey data, you will need to create and distribute the survey.
3. Establish baseline measures.
4. Establish how frequently data is collected, measures reported and who is responsible for collection, reporting and monitoring.
5. Monitor/review measures regularly (e.g. monthly, quarterly)

Pearls and Pitfalls

- ✓ Without a baseline measure it will be impossible to determine if the improvements are working; take time to gather the needed data.
- ✓ Having a balanced set of 2 to 3 measures ensures we are not optimizing one factor at the expense of others (*"Yes, we are delivering quickly, but our quality has decreased"*).
- ✓ Your project metrics should be aligned not only with your project objectives, but also with your Department's mission and goals.

Helpful Links

Template:
Consider search words like:

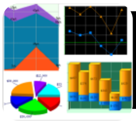
Lean Measures

(2 of 2)

Common Lean Measures

Use the list below to guide your selection of project metrics. Remember the metrics you select should help you determine if you have achieved your project objective(s).

Measure	Description	When to Use
Time Metrics *Lead Time*	Total elapsed time to complete process step(s) **including** waiting & delays	Use when your objective is to reduce the overall process time
Cycle or Touch Time	Time to complete process step(s) **excluding** waiting & delays	Use to calculate the process capability (fastest time the process can be completed)
Quality Metrics *Error Count or Rate*	A total number (or percent) of mistakes	Use to identify areas that need improvement (e.g. a form that has a high error rate on 1 field)
Customer Satisfaction	Measurement of your customers attitudes, feelings or opinions	Use a survey with a Likert scale to allow you to statistically analyze your customer's response
Employee Satisfaction	Measurement of your employees attitudes, feelings or opinions (can indicate potential employee turnover)	Use a survey with a Likert scale to allow you to statistically analyze your employee's response
Process Metrics *Backlog*	Number of items waiting to enter/start the process; demand exceeds capacity	Use to help you manage & plan capacity to demand
Work in Progress (WIP)	Number of items that are being, or waiting to be, processed (e.g. 10 items siting in an inbox waiting)	Use to identify bottlenecks in a process
Number of Hand-offs	When an item is passed from one person or entity to another	Use to identify areas of potential delay or errors
Number of Approvals	Formal (e.g. signature required) authorizations	Use to identify delays in a process (e.g. is an approval really needed?)
Number of Process Steps	Total number of steps in a process	Use to indicate overall process complexity
Cost Metrics *Freed Capacity*	Measure of the additional employee capacity created by the improvement, represented as the number of full-time employees (FTE)	Use when you don't have enough people to get the job done (Number of hour saved ÷ 1760 hours)
Dollar Savings	Reduction in expenses	Use to identify the $ value of improvements (e.g. save $3,000/year on paper, toner, etc. by going electronic)



One accurate measurement is worth a thousand expert opinions. – Admiral Grace Hopper

Voice of the Customer

(1 of 3)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

One of the most important principles of Lean is that value is defined by the customer. Keeping this in mind, each Lean project team should seek to learn what customers appreciate (continue doing), and what they do not like (eliminate or change).

We define customers as the *end user* of the process. Those who play a role are called "stakeholders" and those that benefit from the process are considered "beneficiaries." You may wish to consult these groups, but avoid confusing them with the true customer. If you are unsure of who your customer(s) are, see Boundary Map (SIPOC) on page 39.

Input can be gathered from customers through surveys, interviews, focus groups or comments from customer-facing employees.

Use the voice of the customer to design your solutions during the Lean it! step in the SOLVE model.

How to Apply It

Gain customer feedback through:

1. Customer Surveys – automated methods such as online surveys that use Likert scales, provide quantitative insights.
2. Interviews – Face-to-face meetings are effective for obtaining rich qualitative information.
3. Focus Groups – These are efficient for gaining higher volume of customer input data. Focus groups also benefit from the person-to-person dynamics of a facilitated group discussion.
4. Input from Customer-Facing Employees – those serving customers directly hear can share the most frequent issues their customers have shared.

Pearls and Pitfalls

- ✓ If you don't know what your customers value, you may waste resources on implementing an ineffective solution.
- ✓ Mix methods to develop both a quantitative baseline (useful for measuring in the long run) and qualitative insights (useful for designing improvements).

Helpful Links

Template:
Consider search words like:

Voice of the Customer
(2 of 3)

Example of Interview Guide

Vision Interview Guide

Interviewee: ______________________________________ Title/Role: __________________________

Interview By: _______________________________ Date: _________________________

Project/Value Stream: ____

Opening:

This interview is conducted as part of the preparations for the (VALUE STREAM NAME) Vision Workshop planned for (DATE). The objectives of the workshop are to develop and agree a vision of a potential future process that delivers an excellent service experience to (DEPARTMENT) customers.
We will use the information you provide us to define key questions, bring out key issues and explore challenges in the course of the discussions that will take place during the workshop.

Questions:

1. What is your role at (department)? How long have you worked for (department)? Have you ever worked anywhere else in State or local government and if so, where

Best Practice: Using demographic data (e.g., diversity and longevity of experience) in results lends credibility to interview findings.

2. Have you ever worked in retail or in customer service outsid service experience you have had as a customer and why wa experience you have had as a customer and why was it so bad? What companies or places do you think are really good at customer service, even if you have not experienced them in person, and why?

3. How would you describe the businesses and people who (use your service)? Do they have any common characteristics? Do they fall into groups and if they do, how would you group them and why?

4. After using your service, what would you hope the person would say about his experience with (department)? What do you think they say now? What do you think are the most frequent customer complaints?

5. How well do you think the (NAME) process is understood by the staff? Do you think most people involved with (PERFORMING THE SERVICE) could describe the process steps and are familiar with the rules and regulations that govern the process?

Best Practice: Check to see if anything was missed by allowing interviewee to provide additional feedback afterward.

6. Why do you think we are co her? What do you feel is the mos NAME) customer service? How will you measur he effort?

7. Thinking about the future, what would yo see changed about the current (VALUE STREAM NAME)?

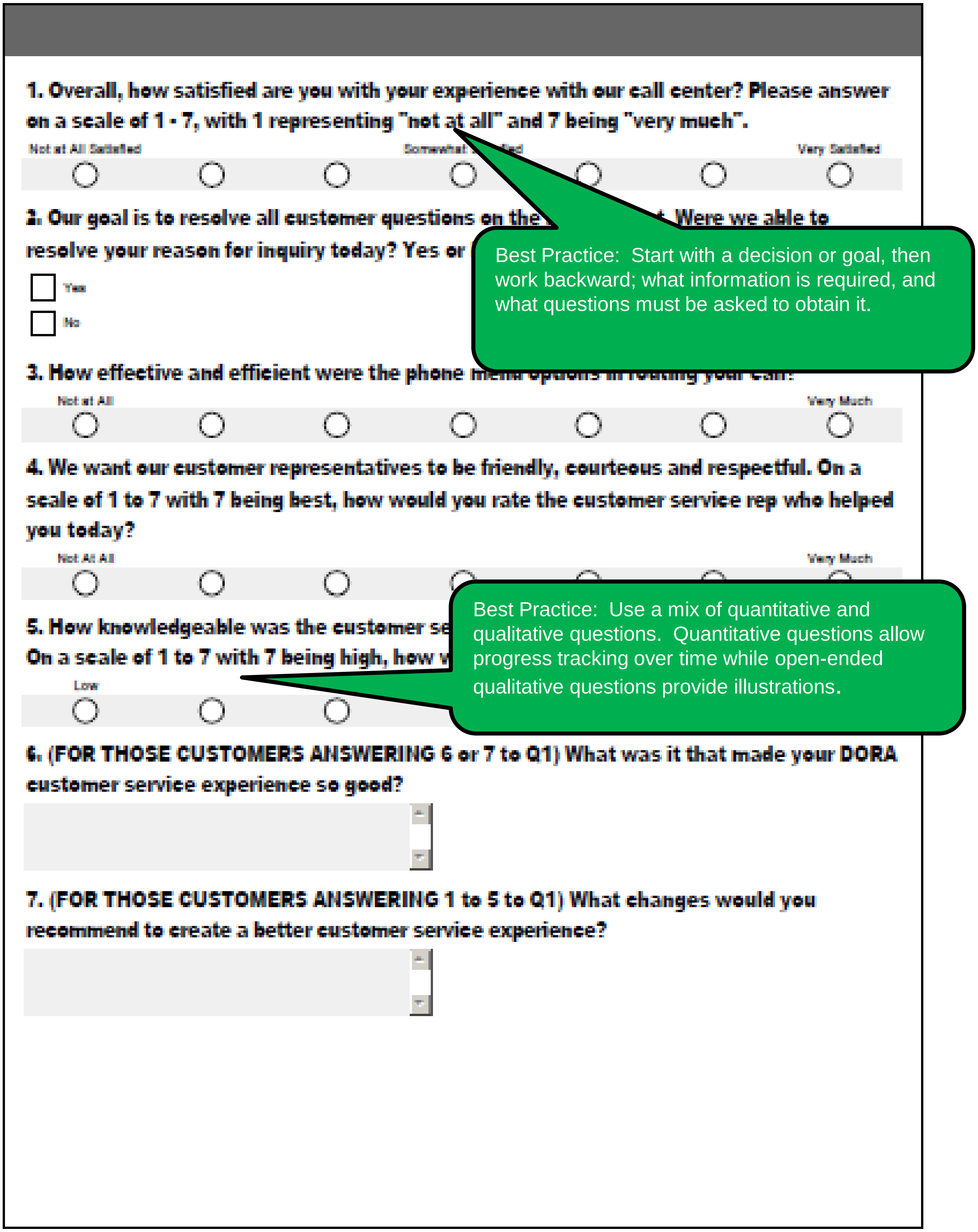
Interview Close:

Thank you for your time and thoughtful participation in the interview.
Your views will help us considerably in assembling an agenda for the workshop. The goal of this interview is to help participants think creatively about potential improvements from the customer's point of view. If there is anything else you'd like to share, please contact (YOUR NAME) via either first.last @state.co.us or xxx.xxx.xxxx. We appreciate your candor and your assistance, and look forward to your company at the workshop.

Voice of the Customer

(3 of 3)

Example of Survey



1. Overall, how satisfied are you with your experience with our call center? Please answer on a scale of 1 - 7, with 1 representing "not at all" and 7 being "very much".

Not at All Satisfied — Somewhat ... — Very Satisfied

○ ○ ○ ○ ○ ○ ○

2. Our goal is to resolve all customer questions on the ... Were we able to resolve your reason for inquiry today? Yes or ...

☐ Yes

☐ No

3. How effective and efficient were the phone menu options in routing your call?

Not at All — Very Much

○ ○ ○ ○ ○ ○ ○

4. We want our customer representatives to be friendly, courteous and respectful. On a scale of 1 to 7 with 7 being best, how would you rate the customer service rep who helped you today?

Not At All — Very Much

○ ○ ○ ○ ○ ○ ○

5. How knowledgeable was the customer se...
On a scale of 1 to 7 with 7 being high, how w...

Low

○ ○ ○

6. (FOR THOSE CUSTOMERS ANSWERING 6 or 7 to Q1) What was it that made your DORA customer service experience so good?

7. (FOR THOSE CUSTOMERS ANSWERING 1 to 5 to Q1) What changes would you recommend to create a better customer service experience?

Best Practice: Start with a decision or goal, then work backward; what information is required, and what questions must be asked to obtain it.

Best Practice: Use a mix of quantitative and qualitative questions. Quantitative questions allow progress tracking over time while open-ended qualitative questions provide illustrations.

Boundary Map (SIPOC)

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

A Boundary Map (SIPOC) is useful for identifying the inputs, outputs, customers and suppliers of a process. This high-level map helps define the boundaries of your project so you know what is in-scope and out-of-scope.

Creating a Boundary Map with your sponsors provides a structured way to discuss the process and get consensus on what it involves before moving to organize resources.

How to Apply It

1. Identify the 4 – 7 key process steps, and write them out as a verb + noun (e.g. receive complaint, open file).
2. Determine what the input (e.g. data file, complaint form) is for each of your process steps.
3. Determine what the output (e.g. phone call, report) is for each of your process steps.
4. Determine who is the end-user or customer of the output.

   Note: End-users of a process may not be the ultimate customer of the entire process
5. Determine who is the supplier of the input.
6. Once you have completed your SIPOC you can:
   1. Define the scope (start and end points) of your project,
   2. Confirm you have the right team members selected
   3. Reach out the customers to obtain their input/feedback.

Pearls and Pitfalls

- ✓ Relying only on a SIPOC and not creating a more detailed process map increases the probability you will miss important details such as the hidden processes that feed into it.
- ✓ Work with your sponsors and/or team to develop the SIPOC to establish agreement regarding the scope of the project.
- ✓ Putting in too much detail into the SIPOC defeats its purpose as a simple visual to identify key elements such as macro-level process steps and customers.

Helpful Links

Template:
Consider search words like:

Boundary Map (SIPOC)

(2 of 2)

Key Points:

1. A Boundary Map (SIPOC) should take no more than 60 minutes to develop.
2. Ideally, a SIPOC should be created with the sponsors and/or team.
3. Use the tips & example below to help you create your map.

Boundary Map (SIPOC) Terms

Supplier	Input	Process	Output	Customer
Person or Entity Providing the Input	Thing or Item	Macro Step	Product or Thing	End-User of the Output

Example Boundary Map (SIPOC) on the Complaint Process

Supplier	Input	Process	Output	Customer
Citizen	Complaint Form	Receive Complaint	Call to Complainant	Complainant
Complaint Analyst	Complaint Details	Create Complaint File	Complaint File	Complaint Manager
Complaint Analyst	Complaint File	Review Complaint File	Decision (investigate or close)	Complaint Analyst
Complaint Analyst	• Decision • Template	Send Letter	Letter of Action (close or investigate)	Complainant

In the above example there are different ‘customers’ for different process steps: complainant, complaint manager and complaint analyst. The overall process’ customer is the complainant. If you are tackling only a single step in the process, you may wish to identify the internal customer (the recipient of that step’s output).

Lean Project Scope Sheet

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

Setting the appropriate boundaries, or scope, of a project is critical for its eventual success. Clearly articulating what is in scope and what is out of scope helps team members maintain their focus and guides their activities. It also allows for transparent progress tracking. Setting the scope of a Lean project is synonymous with completing a scoping document, which defines more than just the scope of the project.

Setting the scope, along with the targeted outcomes and metrics to be used, is helpful in clarifying the nature of the project as well as communicating to other stakeholders. This process may require additional investigation using tools in the Characterize Issues module to clarify the opportunities to be tackled by the project.

How to Apply It

1. Start by clearly stating the problem the team will address to focus their improvement activities. (For more info see Problem Definition on page 32)
2. Set the boundaries of the process so that the team has enough latitude to cover the most likely causes of the problem, yet can also make an impact and finish in a reasonable amount of time.
3. Examine customer(s) of the process, outputs, inputs and suppliers (in that order) from the Boundary Map (SIPOC) to fully define the scope.
4. State which parts of the process, organization, etc. are out of scope to improve clarity.
5. Work with the project sponsors to develop the project objectives, success measures and initial communications.
6. Identify team members and coordinate scheduling of the problem solving session(s).

Pearls and Pitfalls

✓ Failure to identify and address the root cause, means the problem will recur

✓ Scoping helps the team maintain their focus, guide their activities, and track progress.

✓ Beware of scope creep – the incremental expansion of the project.

Helpful Links

Template:
Consider search words like:

Lean Project Scope Sheet

(2 of 2)

Scope Sheet Guide

STATE OF COLORADO LEAN PROJECT OVERVIEW:
SCOPING DOCUMENT PREPARATION GUIDELINES

PROJECT NAME:	Include an **Action Verb** (What we want to do) + **Noun** (What do we want to impact or improve?)	
DATE/VERSION:		
OPPORTUNITY STATEMENT: (Why is this important to the MCPN and our Customers?)	• What is occurring, what is happening, what "pain" are we or our customers experiencing? What is wrong, not working, or could be much better? • Where does it occur? • How much, or what is the extent or magnitude of the problem?	
PROJECT GOALS AND OBJECTIVES: (What will be achieved by working this project? Objectives are informed by background research and interviews.)	• What will be different in the future? • What are the **specific** outcomes we expect? An example might be "Reduce number of days to process a claim by 50%" • What metrics will this project impact? Note: Deliverables may be listed here.	
CUSTOMERS & STAKEHOLDERS: (Note key segments here)	**Customers:** • Who are the direct users of our services affected by this project? **Stakeholders:** • Who else may be impacted by the project or will play a key role in the project's success?	
RESOURCES:	**NAMES AND ROLES**	
Executive Sponsor:	The person who is accountable for the success (results) of the project.	
Project Leader:	The day-to-day leader of the effort (solution).	
Steering Committee:	These are leaders from along the value stream who provide oversight and guidance to project. They set the vision, determine the scope, provide resources and help remove barriers to project success.	
Core Team Members:	These are the experts in the process who will work together to design and implement solutions. Try to keep team to 6-9 team members; make sure all process steps are represented by people who do the work.	
Extended Team Members:	Subject matter experts or stakeholders who provide expertise, data or insight. These people are typically "on-call" during the project.	
Facilitator/Mentor:	This person will coach and mentor the project leader.	
SUCCESS MEASURES: (Typical metrics include impact on quality, speed, and cost. Add current performance and target performance if available.)	**Primary Metric(s):** • These are typically lagging metrics that measure process outcomes and performance to customer requirements. **Other Metrics:** • These may be input or process metrics that, if improved, should drive improved outcomes and performance.	
SCOPE LIMITATIONS: (Where are the boundaries?)	**In Scope** What are the start and end steps in the process? Are there particular populations, products or services included?	**Out of Scope** What is not included?

Lean Roles

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

A Lean organization requires people to function in several roles. We will focus here on three main roles: sponsors, Lean champions (coaches), and Lean project leaders (LPLs).

Sponsors are business leaders who are responsible for selecting and scoping projects, selecting teams, removing obstacles, and sustaining project results. Sponsors will guide LPLs on projects by understanding progress, addressing risks, and removing obstacles as needed.

Lean champions are individuals who have a mastery of Lean tools and techniques. Champions coach, train, and mentor project leaders and may lead high-value projects themselves. Champions also lead projects & Simple SOLVE.

Lean project leaders will lead Lean project teams in addition to their regular duties. A team of process experts will help the LPL execute each project. LPLs must accurately report project progress and elevate risks to the sponsor.

How to Apply It

1. Once you understand how your role fits within the Lean program, work with your colleagues to begin the Lean process.
2. Embrace continual learning beyond the classroom by reading reference material and visiting the eLearning site.
3. Engage with champions to test your understanding.
4. Sponsors should identify key stakeholder groups and prepare for managing change in the organization.
5. Champions and LPLs and sponsors should discuss opportunities, project scoping, and progress.

Pearls and Pitfalls

- ✓ Unclear roles and responsibilities cause confusion, which can lead to team conflicts or inaction.
- ✓ Without clear expectations, it is difficult to maintain accountability.
- ✓ Lean Champions lead by example; they take initiative to identity and solve problems.

Helpful Links

Template:
Consider search words like:

Lean Roles

(2 of 2)

Lean Roles and Responsibilities

General Expectations

- Incremental improvements are better than no improvements
- Lean methods/tools are used to create capacity (where people state they are too busy)
- Lean is used to solve a wide-variety of operational problems
- Use Lean methods and tools as part of a career development:
    - Frontline employees learn effective problem solving skills
    - Managers can use Lean projects to help give their staff leadership opportunities
    - Leaders can use Lean to align and focus the organization’s operations
- A Lean culture (culture of continuous improvement) takes 5 – 10 years to develop

Role	Responsibilities	Characteristics
Lean Champion	▪ Coordinate Dept. Lean deployment ▪ Allocate resources ▪ Maintain master plan ▪ Spearhead communications ▪ Manage change ▪ Understand Lean tools and techniques ▪ Coach, train and mentor project teams and leaders	▪ Current or future leader ▪ Passion for change ▪ Skilled diplomat and communicator
Sponsor	▪ Select projects ▪ Select teams ▪ Charter projects ▪ Remove obstacles ▪ Sustain project results	▪ Executive leader ▪ Bias for action and results ▪ Skilled communicator ▪ Influencer
Lean Project Leaders	▪ Lead Lean teams and projects X% of the time ▪ Report progress and raise barriers	▪ Respected within the organization ▪ Strong communicator and organizer ▪ Passion for improvement
Lean Team Members	▪ Experts in the process who do the work ▪ Will work together to design and implement solutions.	▪ Typically 6-9 team members; ▪ Represent all process steps

Lean Program Organizational Structure

- A Lean Program Management Office (PMO) has been established within the Governor’s Office of State Planning and Budgeting that supports the development and sustainment of the Lean Program across state departments.
- Each department will select Lean champions who will direct the roll-out of Lean within their department.

Making the Case for Change

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

One significant but avoidable obstacle to the success of improvement projects is failure to create a shared need for the change. Without an understanding of the importance of the change, the "why," all other details of the change may seem irrelevant.

Clearly defining the drivers, benefits and consequences of not changing will often be enough to fully align the teams and provide the incentive and rationale to act. This is sometimes called gaining "buy in."

It is important to continuously make the case for change throughout the project lifecycle, especially since you may encounter new stakeholders as you progress from selecting a project to sustaining improvements. The case for change is tightly aligned with Resistance Management (see page 73).

How to Apply It

1. Identify and develop the tangible benefits to customers, partners, and the organization that are expected from the project and articulated in the vision.
2. Map these benefits to stakeholders that need to make a change and those that might ally with you in bringing it about.
3. Develop and execute the implementation plan together, so they have a stake in the investment and (hopefully), the outcome.
4. Consider framing the change in terms of customer value and financial opportunity.

Pearls and Pitfalls

- ✓ Failure to make a sound case for change causes changes to fail.
- ✓ If staff, middle managers, or even customers, don't see the importance of change, they simply won't give it the commitment needed for success.

Helpful Links

Template:
Consider search words like: buy-in, acceptance, adoption, change readiness

Making the Case for Change

(2 of 2)

Key Points:

- Create a 'Burning Platform' by answering:
  - Why does the organization need to change?
  - What will it be like when the organization has changed?
- Clarifying the need will instill confidence that the organization is serious about the pending changes, which will help staff engage with their peers to drive progress.
- The case for change informs your communication and resistance management plans.

Methods to Make the Case for Change:

Below are 4 different approaches to reach the same goal - an audience open to the change and the value it brings

Approach	Details
Actively communicate, Why, then What and How	▪ Knowing why a change is important must precede the "what' and "how" that are all needed to make a project succeed. Establish the "why" in terms of tangible outcomes and benefits like: ▪ Faster service ▪ Less frustration ▪ Standardized options for previously ad hoc processes ▪ Improved ability to lower wasted time or effort ▪ Link this change to the vision. Link the changes to the organization, the root causes, and the improvements to be made. Those challenging facts will generate the support and resources needed to resolve them.
Open Book Management	▪ Provide access to critical business information to buttress the case for change and engage in frank dialogue on these questions: ▪ What are the challenges facing your department? ▪ What are the opportunities? ▪ What are budgetary or resource considerations? ▪ What do members or customers say? ▪ What other measures do you use to make strategic decisions? ▪ Provide necessary training to help people interpret key business data.
Drivers, Benefits and Consequences (DBC)	▪ Drivers for change – How is this a key contributor to the established vision? (e.g. creating a sustainable cost and delivery structure through user-friendly technologies) ▪ Benefits of change – How will customer experience be more convenient, affordable, positive, etc.? ▪ Consequences of not changing - We will continue to feel disorganized and chaotic and our customers will continue to be frustrated.
Management by Wandering Around (MBWA)	▪ In their book, The Leadership Challenge, Peters and Waterman detail the value of leaders available for people to pull them aside. "Hey Nancy! Have you heard about our new Lean project that is going to solve some big customer headaches?" ▪ Do not walk the halls with a pre-set agenda but rather share the why, then the what and how, and then listen to understand impacts these changes may create. ▪ This organic feedback and supporting detail prepares the organization.

Communication Plan

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

People often resist change because they have not been informed and do not understand the reason for the change (the "why"). A communication plan is a simple tool that helps us manage this risk.

A strong communication plan focuses on delivering clear, consistent messages in a manner that is both convenient and attractive. Successful communications mix methods of delivery to ensure that the message is received. This is important because some people won't read a detailed email but will listen intently in a staff meeting or vice versa.

Effective communication features messages tailored to each audience's needs. Develop key messages (about five or so themes) that are most important for your audience to hear, internalize, and act on. At first, it is especially important that these messages are focused on the *why* rather than the *how.* Repeat the core messages to gain buy-in and adoption.

Communication plans are simple and powerful. Remember, the challenge is not in creating the plan but in executing it faithfully!

How to Apply It

1. Identify all audiences you need to reach and what they need to know.
2. Develop a series of messaging themes that can be tailored to the listener, focusing on the reason for change before the specific actions.
3. Draft your plan, ensuring that all audiences are reached in ways that fit their style.
4. Execute the planned communications and gauge feedback.
5. Set a timeline for on-going messaging during the project.

Pearls and Pitfalls

- ✓ People prefer to hear vision messages from executive leaders and details from their direct managers.
- ✓ People learn differently, so mix delivery modes and styles.
- ✓ Relentless repetition is critical to retention.
- ✓ Communicate in the context of other changes that are affecting the audiences.
- ✓ Utilize existing communication forums when possible to avoid unnecessary disruptions.

Helpful Links

Template:
Consider search words like:

Communication Plan

(2 of 2)

Example Messaging Themes from the DORA Call Center Project:

- Our goal is to deliver world-class service to our DORA customers
- We are operating in a tough environment: increasing call volume, increasing variation, etc
- This is our first Lean effort and sets the stage for continued improvement in customer service
- Call center people are important because they are the face of DORA to our customers
- Will engage the people who do the work in identifying and addressing opportunities
- This WILL NOT result in job loss

Example Initial Communication Plan from DORA Call Center Project:

Audience and Objective	Message Contents	Method	Owner	Timing
Core team and supervisors – *Prepare them to participate*	• What is Lean and why do we care (theme) • Project objectives and timeline • My role in the effort and impact on me • What we will do • Next steps	Kickoff meeting (30 – 60 minutes)	Project Sponsor	Feb 17
All DORA employees — *Awareness*	• What is being done with first Lean event • Why is it important • Update on progress in March	Dora.net	Executive Director	Feb 17
Call center staff impacted by the analysis (3 groups) – *Prepare them to contribute*	• What is Lean and why do we care • Importance of call center personnel • Project objectives and timeline • My role in the effort & impact on me • What we will do • Next steps	Stand up meetings (20 minutes)	DORA Supervisors	Week of Feb 20
Division directors – *Awareness*	• Introduction • Scope overview • Permission to flow down to their staffs	Staff meeting	Project Sponsor and Leadership	Feb 23
Other call centers in DORA – *Awareness*	• What is Lean and why do we care • Overview of effort • Contact names and when they can expect to hear next	Three-page flow down or talking points for supervisors	Supervisors	Week of Feb 27

Problem Solving Session

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

Team problem solving is a key differentiator of the Lean method. Groups that bring the right knowledge and the right attitude achieve impressive results. There are 3 major steps to facilitating a SOLVE Lean It! session: Prepare for the session, conduct the session, and close the session.

How to Apply It

Prepare for the Session:

1. Determine session purpose and deliverables (e.g. current state process map, prioritized solution ideas).
2. Develop a timed agenda for the session.
3. Manage logistics (e.g. room reservations, materials needed, invitations & communications to participants and relevant managers).
4. Setup the room prior to participants arrival

Conduct the Session:

1. Review agenda and ground rules
2. Provide clear direction for exercises and use questions to guide the group
3. Allow for discussion of topics but cut-off unproductive arguments or side-bars
4. Document/record participant input

Close the Session:

1. Review all activities/items produced during the session
2. Thank participants
3. Document and distribute

Pearls and Pitfalls

- ✓ Failure to prepare will result in an ineffective problem solving session and at worst will waste valuable resources (e.g. people's time).
- ✓ Remember to notify a participant's manager of their staff member's involvement in a Lean project. This will help to avoid conflicts.
- ✓ For a successful session, build in setup, cleanup and documentation time.

Helpful Links

Template:
Consider search words like:

Problem Solving Session

(2 of 2)

3-Step Facilitation Process:

Prepare for the Session → **Conduct the Session** → **Close the session**

Prepare for the Session

1. Determine the session purpose and deliverables
2. "Walk the process"
3. Design the session
4. Manage logistics and pre-session communications
5. Prepare the room
6. Prepare your opening

Conduct the Session

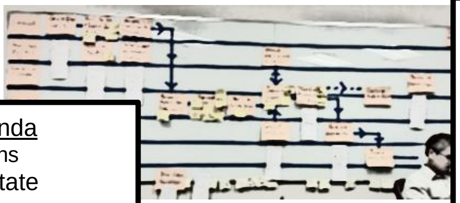
1. Open the session
2. Using questions
3. Provide good directions
4. Record participant input
5. Tools to stay on track
6. Manage Dysfunction
7. Achieve Consensus

Close the session

1. Review
2. Evaluate
3. Debrief
4. Close

Ground Rules
- Participate
- One person, one vote
- Respect
- One convers
- No ring beeper
- Start/er time
- Others'
- Have fu

Map current state process



Agenda
- Introductions
- Current State Process
- Problems/Issues/Root Causes
- Improvement Ideas
- Target State Process
- Implementation Plan

Ideas & Prioritization

Issues/Root Cause

Parking Lot

Action Items

What Who When

Decisions

For more detailed instructions on facilitating visit the State's Lean Website

Process Maps

(1 of 2)

The Tool and Why it's Valuable

Process maps illustrate a process by displaying the actual flow or sequence of steps that a product, service, or piece of information follows. It is a powerful tool for reaching consensus on the actual steps in a process, as well as depicting issues.

Process maps are way of visually communicating what is actually occurring in a process, provide the basis for the process analysis, and visually highlight areas of inefficiency. The maps show areas of complexity, redundancy, or unnecessary loops, handoffs or approval steps, where simplification and standardization may be possible.

How to Apply It

1. Determine the boundaries of the process and observe the process being performed.
2. Work with the group to identify all the steps in the process; include inputs, outputs, decision points, and related material or information flows.
3. Arrange the steps in order using sticky notes to allow rapid editing.
4. Check for completeness by following people, requests, and products through the entire process. Make sure feedback loops are closed and key decision points or branches of logic are included.
5. Finalize the diagram by ensuring all team members agree that the diagram is accurate.
6. Enrich the map with data such as touch time, backlog size, error rate, etc, to help identify opportunities.

Note: Arranging the process map so that the steps align with roles in the organization results in a "swim lane" diagram, illustrating who does what in the process and highlighting hand-offs.

Pearls and Pitfalls

- ✓ Capturing details like sub-steps and rework loops makes it easier to identify waste that may be hidden in a less detailed map.
- ✓ Be sure participants clearly understand what the objectives of the process mapping session are and set sensible deadlines to allow enough time to complete the exercise properly.
- ✓ Don't worry if the current state process map looks messy – it is!

Helpful Links

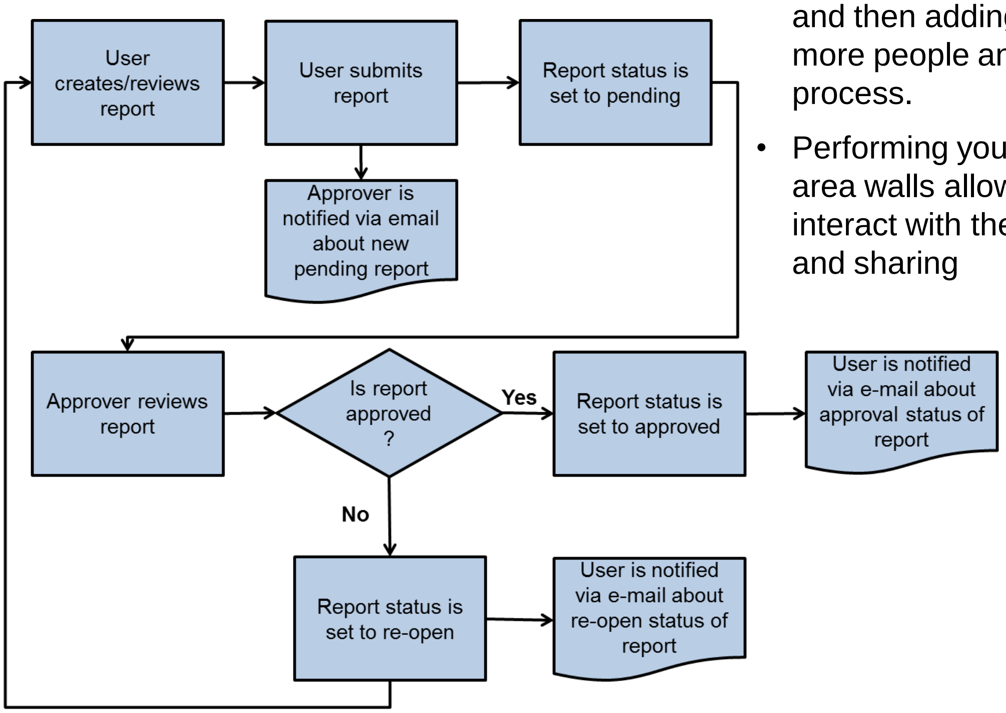
Template:
Consider search words like:

Process Maps

(2 of 2)

Example: Simple Process Flow Map

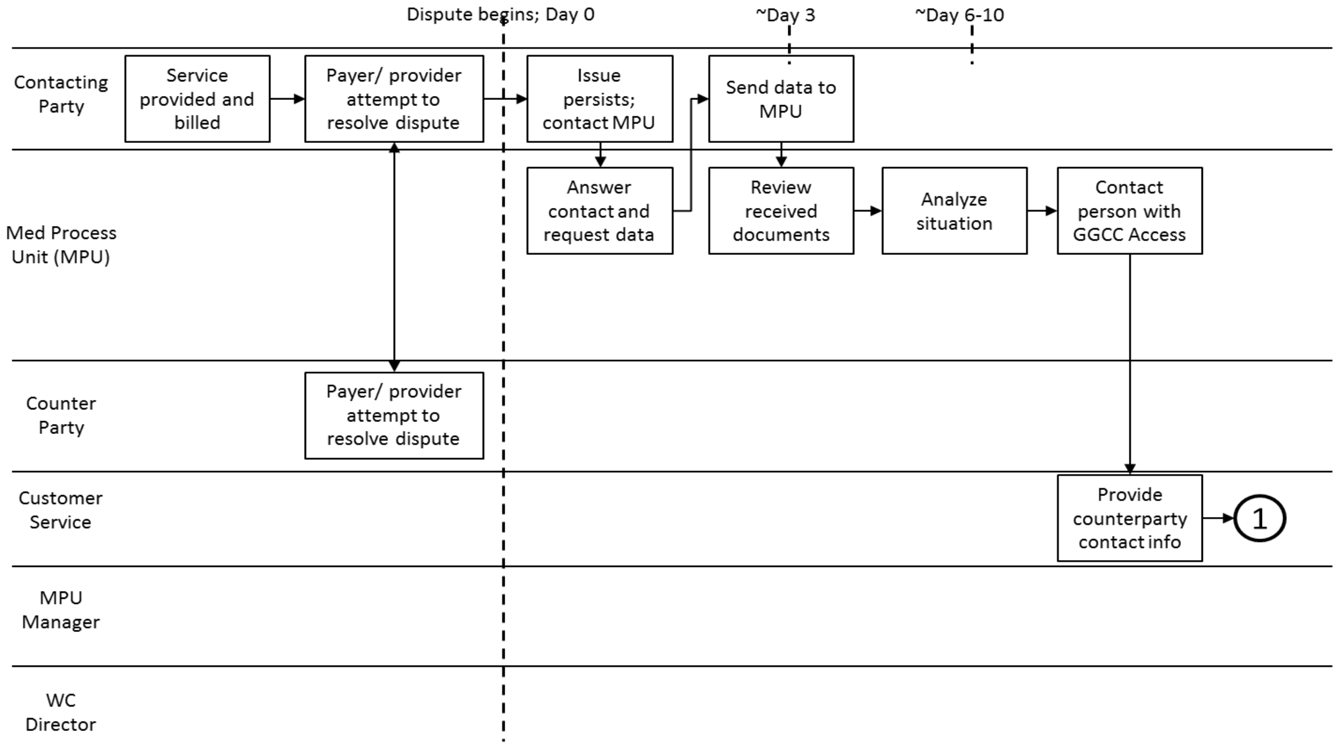
Includes Approval and Feedback Loop


User creates/reviews report
User submits report
Report status is set to pending
Approver is notified via email about new pending report
Approver reviews report
Is report approved ?
Yes
Report status is set to approved
User is notified via e-mail about approval status of report
No
Report status is set to re-open
User is notified via e-mail about re-open status of report

Key Tips:

- Consider mapping at a high level first and then adding detail as you engage more people and learn their role in the process.
- Performing your mapping on work area walls allows many people to interact with the maps, both learning and sharing

Example: CDLE WC Disputes Swim Lane Process Map


Dispute begins; Day 0
~Day 3
~Day 6-10
Contacting Party
Med Process Unit (MPU)
Counter Party
Customer Service
MPU Manager
WC Director
Service provided and billed
Payer/ provider attempt to resolve dispute
Issue persists; contact MPU
Send data to MPU
Answer contact and request data
Review received documents
Analyze situation
Contact person with GGCC Access
Payer/ provider attempt to resolve dispute
Provide counterparty contact info
1

8 Wastes (WASTEFUL)

(1 of 2)

The Tool and Why it’s Valuable

Waste can be characterized as any activity that consumes resources but does not create value for the customer. The main goal of Lean is to eliminate waste.

There are eight specific wastes classified in Lean and the first letter of each form the memory aid “WASTEFUL.”

Applying the concept of waste identification and elimination should be a constant activity. It should become a way of thinking for all members of a Lean organization. This may be challenging at first, as you may not recognize waste in existing processes because “that’s the way we’ve always done it.” Over time, though, all employees will be able to quickly and accurately identify waste within a process.

How to Apply It

1. Take a “waste walk.” Tour the workplace and follow the process steps, asking yourself and your team (respectfully!) at each step:
    1. Is this step necessary to achieve the process goal?
    2. Does the person completing this step have to wait for something or someone to begin their work?
    3. Do you store any partial or completed products (e.g., applications)?
    4. What errors are typically found? What is the source?
    5. Does any information get entered multiple times?
    6. Can you see any of the other 8 wastes in this process?
2. Document your findings and share with others.
3. Use the Simple SOLVE model or Structured SOLVE model to eliminate the waste and measure your improvements.

Pearls and Pitfalls

- ✓ Overcoming the “we’ve always done it this way,” can be a challenge.
- ✓ There is waste in every organization and ignoring waste is a disservice to the employees who work there, your customers, and the taxpayers.

Helpful Links

Template:
Consider search words like:

8 Wastes (WASTEFUL)

(2 of 2)

Key Tips:

- Talking about process waste helps take focus off of individuals, making it clear that the process contains waste and that removing it will set people up for success.
- Look for these 8 wastes in the process.
- Listen for these types of comments regarding the process.

	What you might observe:	**What you might hear:**
Waiting	When the process stops	*"I know it's urgent, but I'm waiting on …"*
Approvals	Approvals or inspections that don't improve the product or service	*"We have checkers checking the checkers"*
Silos	Handoffs between people and organizations	*"I don't know how the whole process works, only my piece"*
Transportation	Any movement of paper or people (motion)	*"I spend a lot of my time walking to/from the different offices with folders."*
Errors	Things not done right the first time; requires rework	*"I find mistakes all the time, and sometimes our customers do"*
Failure to Prioritize	Working in crisis mode because "everything is important"	*"It's hard to know what needs to be done first."*
Underutilized Talents	Not using all of an employee's skills	*"We've always done it this way, but it doesn't seen logical"*
Lack of Standards	The absence of standard methods and targets	*"Everyone does it differently so it's hard to improve"*

***Prioritizing** is figuring out what is most important to you and doing things in that order, whereas procrastination is avoiding something that needs to be done.

Value Add

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

Value in a Lean system can only be defined by the customer. Any step that changes the form or function of a product or service, is done right the first time, and the customer is (or would be) willing to pay for is value added. Otherwise, it is non-value added.

Non-value add (NVA) activities consume time, funding, and/or space, but do not contribute to creating value. These activities reduce the overall ability to meet customer needs. Some non-value add activities include approvals, rework, and inspection.

Some tasks are required by others in the operation or to comply with regulations, but not desired by the customer. These tasks can be labeled "business or regulatory non-value-add. The aim of a Lean system is to eliminate non-value add activities

How to Apply It

1. Analyze each step in the process, asking these 3 questions:
    - Does this step transform the product or service in terms of form or function?
    - Is this a requirement of our end user?
    - Is the customer willing to pay for or use their time (e.g. waiting in line) for the activity?
2. If you cannot answer yes to each of the 3 questions, then it is likely that the activity is non-value-added.
3. Take action to eliminate any non-value add activities, rationalize and automate any business or regulatory non-value add activities, and innovate to link existing value add activities?

Pearls and Pitfalls

✓ Overcoming the "we've always done it this way," can be a challenge.

✓ Employees doing the work do not define value – only the customer defines value.

✓ Helping others understand what customers want and need (value) is critical for the development of an efficient, effective process.

✓ Understanding that customer expectations change – what delights today is a necessity or no longer wanted next year. Therefore, continuous improvement is a perpetual process.

Helpful Links

Template:
Consider search words like:

Value Add

(2 of 2)

Key Tips:

- Improvement is attained by the elimination of any non-value add activities and by reducing, rationalizing, and automating non-valued add activities that are required for the business or required by law.
- Internal customers are important partners in refining a process, but they do not dictate what is value-added for an external facing process.

Exceptions:

- *If you are using Simple SOLVE, and only fixing a specific part of the process, that an internal customer is the end-user, then he/she determines the value.*
- *If you are working on a strictly internal facing process (e.g. travel requests) then the internal customer determines the value.*

Examples of Value Add and Non-Value Add

Activity Type	Definition	Examples	Improvement Approach
Value Add (VA)	• Customer wants to pay for it (time or $) • Changes the product or service • Done right the first time	• Issue license • Process tax return	Link to Improve Flow/ Innovate
Non-Value Add (NVA) / Waste	• Activities which consume time and/or space, but don’t contribute to creating value	• Approvals • Rework • Inspection	Eliminate
Business or Regulatory Non-Value Add (B-NVA, R-NVA)	• B-NVA: Required to run the business • R-NVA: Required by law or regulation	• Reports • Some approvals	Reduce, Rationalize, or Automate

Root Cause Analysis

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

Addressing symptoms of a problem will not result in long-term stable performance. We must determine and control the root cause.

The core goal of root cause analysis is discovering why something happened. Simply asking 'why' can search out deeper levels of causality. 5 Whys is a useful tool to characterize issues and to identify the root cause of a problem before proposing a solution.

Many problems have more than 1 root cause. If you believe this is the case then a "fault tree" analysis can be used to identify many causes with the goal of isolating those few causes that are significant

How to Apply It

1. Ask, "Why is this a cause of the original problem?"
2. Document root cause answers on a whiteboard. If the group feels that there are multiple reasons, then represent this in a logic tree structure.
3. Continue to ask why at least five times as a rule of thumb.
4. Stop when the root cause is apparent or when a cause is controlled by a managerial level more than one level beyond the group's level.
5. Check the validity of the analysis by reverse logic. Start at the root cause and state, "Therefore", then recite the next step above. Each step should logically flow from bottom to top.
6. If you are unable to settle on a single "why," then use the fault tree structure to map the potential reasons and further analysis to determine which is significant.

Pearls and Pitfalls

- ✓ Failure to identify and address the root cause means the problem will recur.
- ✓ The true root cause may not emerge quickly, so be diligent and use data and small tests to confirm you have isolated the true root cause.
- ✓ If the perceived root cause is out of your control, gain support from a senior leader to expand the analyses.

Helpful Links

Template:
Consider search words like: Fishbone diagram

Root Cause Analysis

(2 of 2)

Example of the 5 Whys in Action

Problem Statement:
Losing the war cost us the Kingdom

Therefore

1st Why?
The war was lost because the battle was lost

Therefore

2nd Why?
The battle was lost because the rider carrying the intelligence was lost

Therefore

3rd Why?
The rider was lost because his horse threw a shoe

Therefore

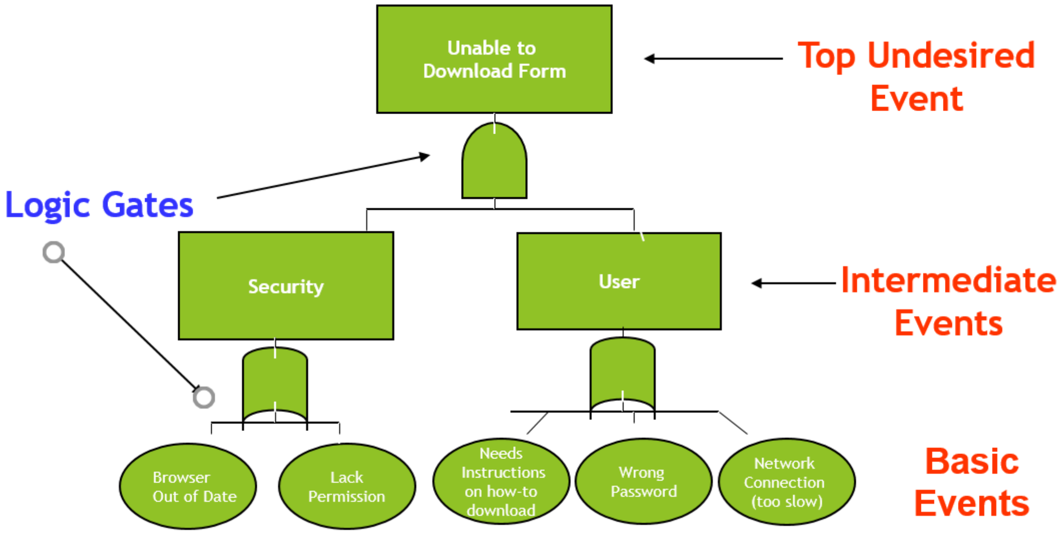
4th Why?
The horse threw a shoe because it was not attached with enough nails

Therefore

5th Why?
The blacksmith did not have enough nails to attach each shoe properly

Root Cause
A shortage of horseshoe nails cost us the kingdom

Sample Fault Tree


Unable to Download Form
Top Undesired Event
Logic Gates
Security
User
Intermediate Events
Browser Out of Date
Lack Permission
Needs Instructions on how-to download
Wrong Password
Network Connection (too slow)
Basic Events

In root cause analysis, basic and contributing factors are discovered in a process similar to diagnosis of disease – with the goal always in mind of preventing the recurrence. ~ Sidney Dekker

Check Sheet

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it’s Valuable

Check sheets are the templates used to collect process data that will allow you to analyze a process or an issue. You can use these templates to quantify defects, process volumes, cycle times, etc. Some templates you might consider using include:

- Basic check sheet – typically collects a count of something that occurs like errors or defect-free end products
- Frequency plot check sheet – visual chart to show the distribution of items or events along a scale to detect patterns

Whether you use one of these templates or create your own, you will reap benefits by making a check sheet in advance of gathering data. Using a standard form enables quick and consistent data collection.

How to Apply It

1. Determine which data you want to collect before creating or selecting a template.
2. Specify which time period will be applied to data collection.
3. Include space for comments and names of individuals who collect the data.
4. Include dates, a specific check sheet title, and measurement type (e.g., seconds, minutes, hours).
5. When possible, do a short pilot with a new template and make adjustments as necessary before beginning actual data collection.

Pearls and Pitfalls

- ✓ Check sheets that are labor-intensive may not be filled-in completely; strive for capturing the critical few items needed for analysis.
- ✓ Failure to engage the people who must use the check sheet in the design of the sheet itself may reduce buy-in/use

Helpful Links

Template:
Consider search words like:

Check Sheet

(2 of 2)

Example Basic Check Sheet

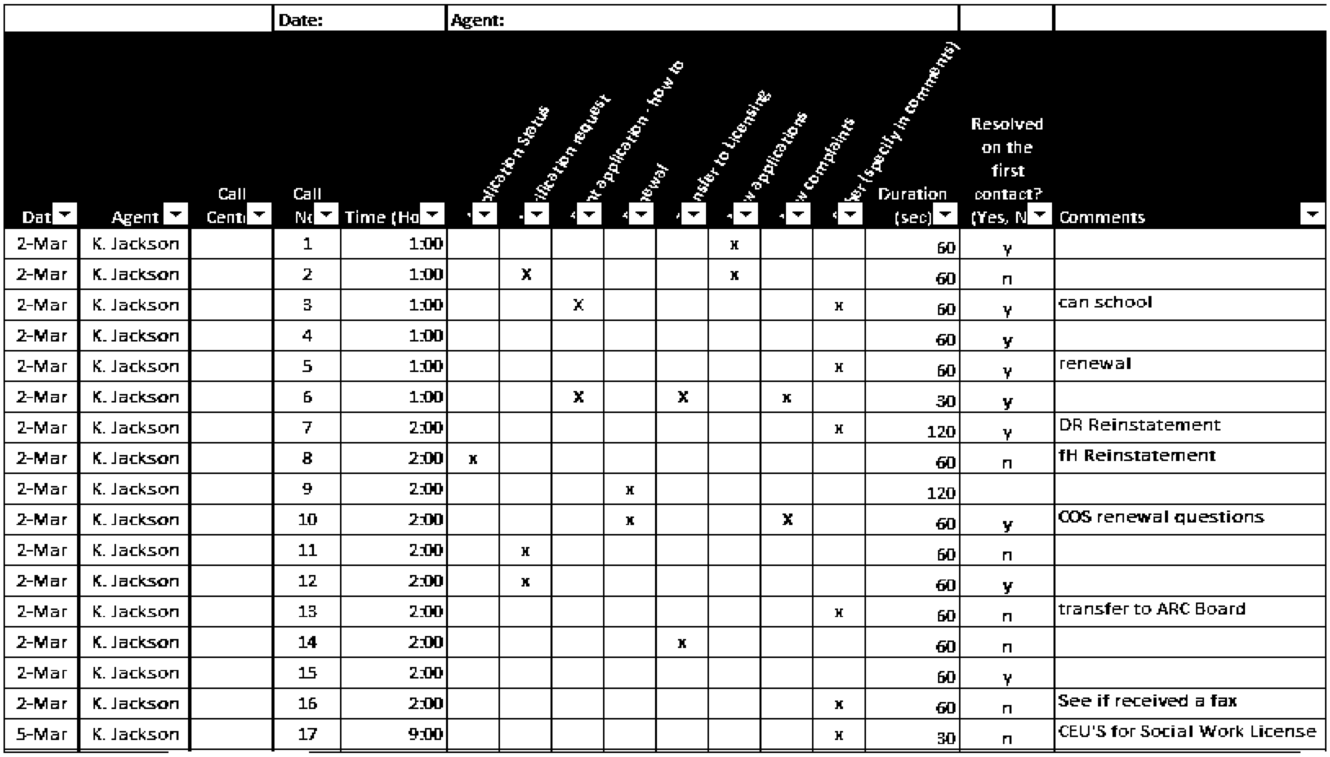
	Week				
Defect	**1**	**2**	**3**	**4**	**Total**
Incorrect SSN	|		|	|	3
Incorrect Address		|			1
Incorrect Work History	|			|	2
Incorrect Salary History	||	|	|||	||	8

Key Tips:

- Check sheets can be used to quickly gather data on a process that does not have data available.
- Some process data is better than no data.

Sample Call Tracking Check Sheet

To gather data on the reasons for customer contacts, a team at the Department of Regulatory Agencies developed a check sheet. The team also added columns for call duration (to the nearest 30 seconds) and whether or not the caller's issue was resolved on the first contact (yes/no).



			Date:		Agent:										
Dat	Agent	Call Cent	Call No	Time (Ho	plication Status	ification request	nt application - how to	newal	nsfer to Licensing	w applications	w complaints	er (specify in comments)	Duration (sec)	Resolved on the first contact? (Yes, N	Comments
2-Mar	K. Jackson		1	1:00						x			60	y	
2-Mar	K. Jackson		2	1:00		X				x			60	n	
2-Mar	K. Jackson		3	1:00			X					x	60	y	can school
2-Mar	K. Jackson		4	1:00									60	y	
2-Mar	K. Jackson		5	1:00								x	60	y	renewal
2-Mar	K. Jackson		6	1:00			X		X		x		30	y	
2-Mar	K. Jackson		7	2:00								x	120	y	DR Reinstatement
2-Mar	K. Jackson		8	2:00	x								60	n	fH Reinstatement
2-Mar	K. Jackson		9	2:00				x					120		
2-Mar	K. Jackson		10	2:00				x			X		60	y	COS renewal questions
2-Mar	K. Jackson		11	2:00		x							60	n	
2-Mar	K. Jackson		12	2:00		x							60	y	
2-Mar	K. Jackson		13	2:00								x	60	n	transfer to ARC Board
2-Mar	K. Jackson		14	2:00					x				60	n	
2-Mar	K. Jackson		15	2:00									60	y	
2-Mar	K. Jackson		16	2:00								x	60	n	See if received a fax
5-Mar	K. Jackson		17	9:00								x	30	n	CEU'S for Social Work License

Pareto Analysis

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

The Pareto Principle states that 80% of the impact can be attributed to 20% of the causes. In problem solving, this means we should focus on the 'critical few' rather than the 'trivial many.' Once you have charted your data, there are two possible outcomes: clear Pareto effect and no Pareto effect.

When there is a clear Pareto effect, a few categories (~20%) will account for approximately 80% of the entire impact or defects observed. Focus your improvement efforts on these 'critical few' categories to drive the greatest improvement in performance.

How to Apply It

1. When observing a process for improvement opportunities you should collect: delay, error and/or defect data.
2. Determine categories and gather data on the number of defects or delays in each category.
3. Plot your data by category and arrange your highest frequencies from left to right. Add a line to show cumulative percentage and to determine whether or not there is a clear Pareto effect.
4. Consider plotting the same categories with another variable like time or cost required to fix the defect. Analyzing the results of the two graphs together will help you target the most frequent and highest-impact defects.

Pearls and Pitfalls

- ✓ Pareto analysis may fail to take into account recent policy changes, or government regulations, which can lead to faulty decisions and inefficient allocation of resources.
- ✓ Pareto analysis does not account for factors outside the scope of production, such as customer service and market considerations.
- ✓ Successful Pareto analysis lies in the accuracy of the scoring of each issue. Ensure proper scoring to each factor on the Pareto chart to avoid inaccurate results.

Helpful Links

Template:
Consider search words like: Histogram

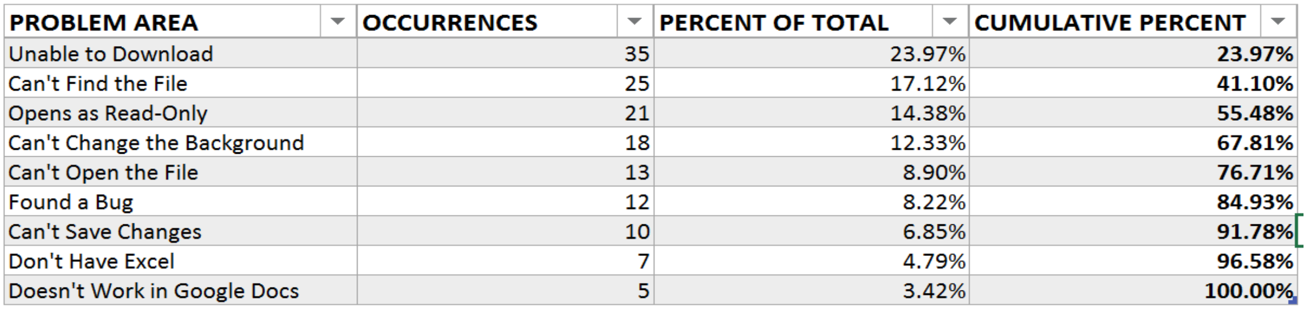
Pareto Analysis

(2 of 2)

Key Points:

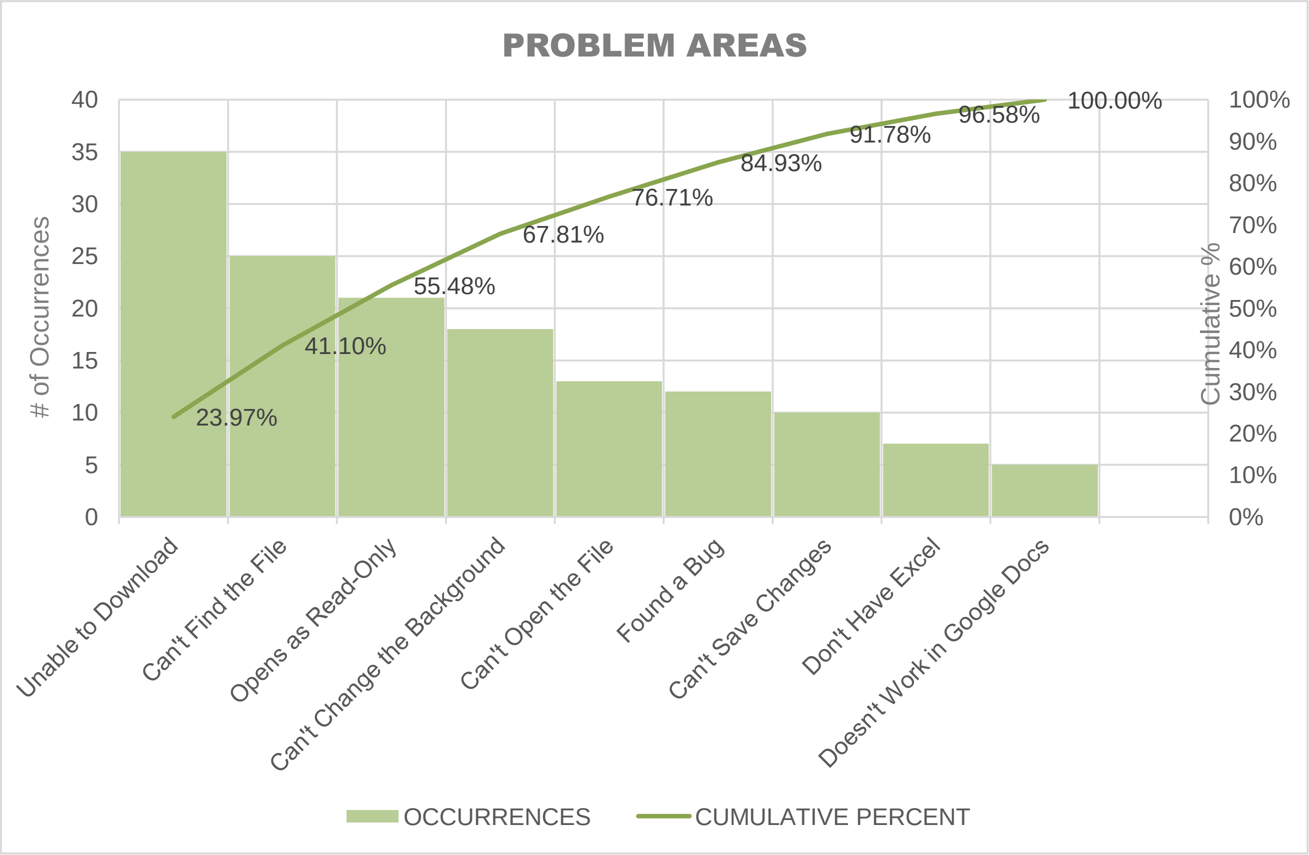
1. A Pareto Chart can be created in Excel (download a template from MS Office).
2. Enter your data – be sure it is accurate and relevant to your problem.
3. A few categories will account for approximately 80% of the entire impact or defects observed, and this will be your focus area.
    - In the example below, the first two problem areas account for approx. 65% of the cumulative percent of problems.

Example Data Used to Create Pareto Chart



PROBLEM AREA	OCCURRENCES	PERCENT OF TOTAL	CUMULATIVE PERCENT
Unable to Download	35	23.97%	**23.97%**
Can't Find the File	25	17.12%	**41.10%**
Opens as Read-Only	21	14.38%	**55.48%**
Can't Change the Background	18	12.33%	**67.81%**
Can't Open the File	13	8.90%	**76.71%**
Found a Bug	12	8.22%	**84.93%**
Can't Save Changes	10	6.85%	**91.78%**
Don't Have Excel	7	4.79%	**96.58%**
Doesn't Work in Google Docs	5	3.42%	**100.00%**

Example Pareto Chart



Error Proofing

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

The goal of error proofing is to design processes so that mistakes are prevented, or at a minimum, detected immediately after they occur.

Also called "mistake proofing," error proofing should be implemented in a process when rework or process delays downstream are impacting process efficiency.

There are two methods of error proofing that can be implemented: the prevention approach or the warning approach:

- ***Prevention*** requires changes to the process that stop errors from happening.
- ***Warning*** uses signals, such as visual indicators, that bring attention to an error and stop the product from moving to the next process step until the error is fixed.

How to Apply It

1. For each improvement, determine the means by which something could be done incorrectly. This may be done by testing or by gathering actual failure data.
2. Work with a team to develop options for how to control the issue, either through design (prevention approach) or through alert of issue (warning approach).
3. Implement mistake proofing steps, observe future failures, and gather data for on-going improvement.

Pearls and Pitfalls

- ✓ It is better to move quality forward, using error proofing to prevent errors (prevention) rather than inspecting to identify them (warning).
- ✓ Error proofing is a progressive process. Analyze your options thoroughly, but do not wait for a perfect solution. Instead, get available controls in place as soon as possible and work over time to refine.

Helpful Links

Template:
Consider search words like: Poke yoke

Error Proofing

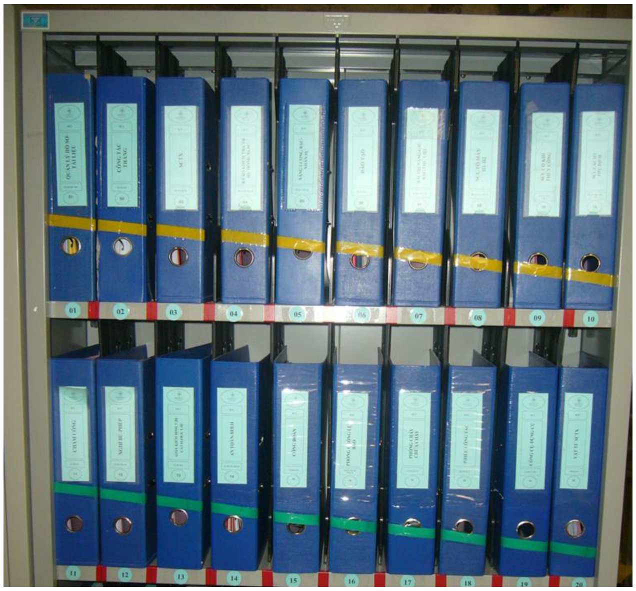
(2 of 2)

Key points:

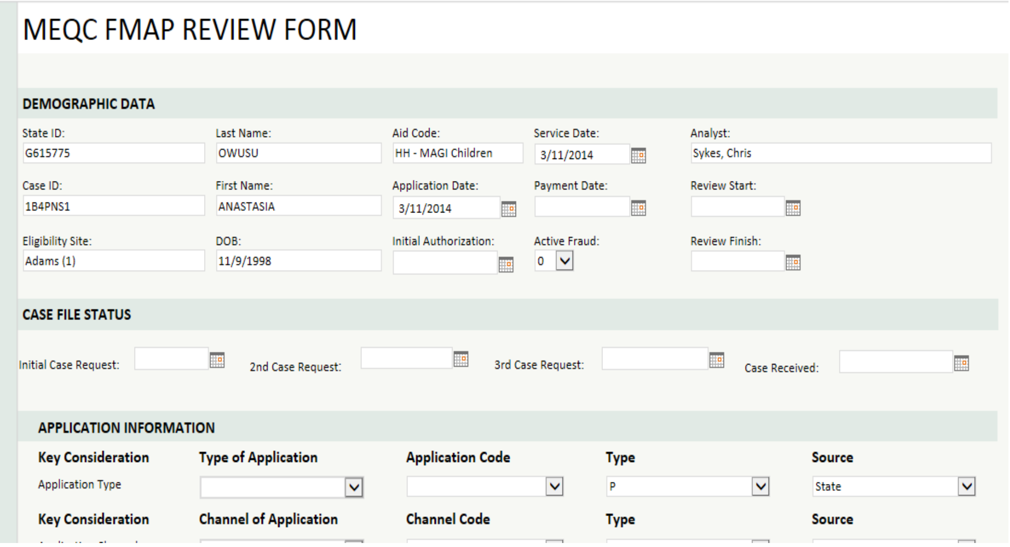
- Sometimes it may not be possible to prevent errors, so your goals should be to detect and fix errors as soon as they occur.
- Checklists, visual management and standard work are all ways to error proof a process.

Checklists ensure steps are not missed.

Using simple visual ques helps prevent mistakes. In this example, tape across the binders helps people put the binder back into the right spot.



Electronic templates (Word, Google form, etc.) make it difficult to enter the wrong information.



MEQC FMAP REVIEW FORM

DEMOGRAPHIC DATA

State ID: G615775
Last Name: OWUSU
Aid Code: HH - MAGI Children
Service Date: 3/11/2014
Analyst: Sykes, Chris
Case ID: 1B4PNS1
First Name: ANASTASIA
Application Date: 3/11/2014
Payment Date:
Review Start:
Eligibility Site: Adams (1)
DOB: 11/9/1998
Initial Authorization:
Active Fraud: 0
Review Finish:

CASE FILE STATUS

Initial Case Request:
2nd Case Request:
3rd Case Request:
Case Received:

APPLICATION INFORMATION

Key Consideration	**Type of Application**	**Application Code**	**Type**	**Source**
Application Type			P	State
Key Consideration	**Channel of Application**	**Channel Code**	**Type**	**Source**

COLORADO

5S

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

5S is a methodology for cultivating and maintaining a clean, organized, and safe workplace. 5S derives its name from five related terms that begin with the letter "S". The 5S are:

- Sort – Distinguish needed vs. unneeded items and remove the latter
- Set in order – Keep needed items in the correct place to allow for easy and immediate retrieval
- Shine – Keep the work space orderly and clean; clean to inspect for issues
- Standardize – Create consistent standards for visual management across an organization, using signs, photos and colors to create a common understanding of what is an acceptable condition
- Sustain – Be disciplined and develop a habit of maintaining the first four categories; conduct checks to ensure sustainment

How to Apply It

1. Sort involves tagging all items that may not be regularly used, and storing or disposing of items not regularly used.
2. Set in order involves arranging items in the work center/ office by frequency of use, placing the most commonly used items within arm's reach. Borders are drawn around these items to indication their proper location.
3. Shine is a routine to get rid of dirt and grime. Make a plan for daily, weekly, and monthly cleaning tasks.
4. Standardize includes setting visual standards such as photos, cleaning schedules, etc. so all colleagues can adhere to a 5S workplace.
5. Sustain by utilizing an audit approach to track how well the 5Ss are being maintained. Transfer ownership of audit to the employees in the area.

Pearls and Pitfalls

- ✓ 5S is not just 'spring cleaning," It is a disciplined approach to creating and maintaining order to enable workplace productivity
- ✓ When using 5S on shared computer files or areas the first 3 steps are easy; the last two take commitment from all levels of the organization.

Helpful Links

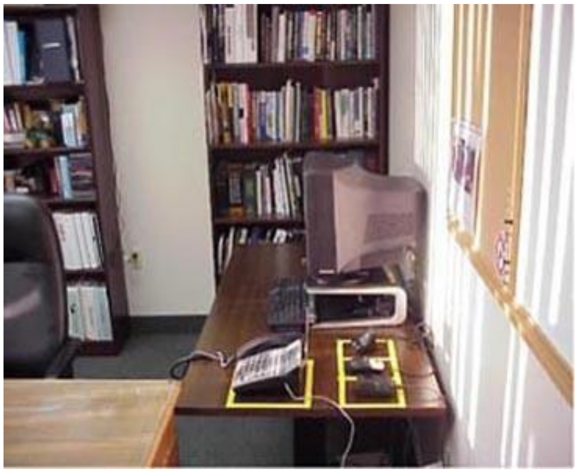
Template:
Consider search words like: 6S

5S

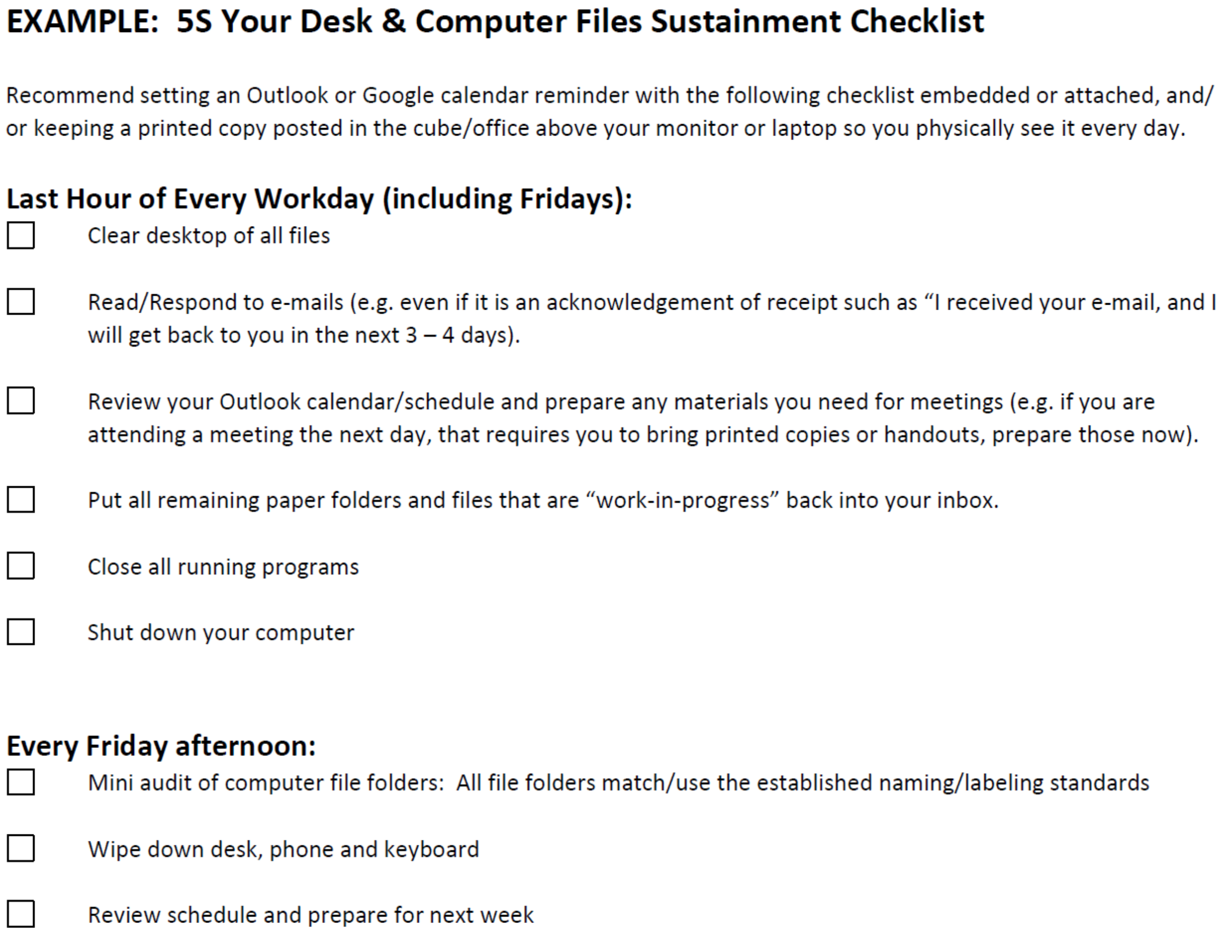
(2 of 2)

Before 5S
Clutter makes it difficult to find information customers need

After 5S
A new standard. A place for everything. Everything in its place!



Sample 5S Checklist



EXAMPLE: 5S Your Desk & Computer Files Sustainment Checklist

Recommend setting an Outlook or Google calendar reminder with the following checklist embedded or attached, and/or keeping a printed copy posted in the cube/office above your monitor or laptop so you physically see it every day.

Last Hour of Every Workday (including Fridays):

☐ Clear desktop of all files

☐ Read/Respond to e-mails (e.g. even if it is an acknowledgement of receipt such as "I received your e-mail, and I will get back to you in the next 3 – 4 days).

☐ Review your Outlook calendar/schedule and prepare any materials you need for meetings (e.g. if you are attending a meeting the next day, that requires you to bring printed copies or handouts, prepare those now).

☐ Put all remaining paper folders and files that are "work-in-progress" back into your inbox.

☐ Close all running programs

☐ Shut down your computer

Every Friday afternoon:

☐ Mini audit of computer file folders: All file folders match/use the established naming/labeling standards

☐ Wipe down desk, phone and keyboard

☐ Review schedule and prepare for next week

Option Evaluation

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

The purpose of option evaluation is to determine which of the potential solutions has the best return on investment (ROI). We must answer these questions:

- Is the solution reasonable
- Are the resources (time, funding, technology) feasible?

An option evaluation forces the project team to put their ideas on paper to conduct analysis and assess whether the ideas are worth investing or not. It prevents unfounded spending of effort, time and money on solutions that are either not feasible or lack impact.

Often the final solution(s) are a compromise between conflicting needs and between the advantages and disadvantages of the various options.

How to Apply It

1. Establish criteria for solution evaluation (see sample criteria on next page).
2. Analyze solutions compared to the criteria to identify those that have the greatest impact and can be implemented relatively quickly.
3. Decide on which solutions to implement.
4. Present recommendations to the sponsors for their input and final decision.

Pearls and Pitfalls

- ✓ Existing technology should be used, but beware of automating a poor performing process – the process should be improved first.
- ✓ Have a bias for solutions that are within your control and can be tested without significant investment.
- ✓ Consider broadening your team when evaluating options. Doing so is a means of gaining buy-in from those whose help is needed to test the solution(s).

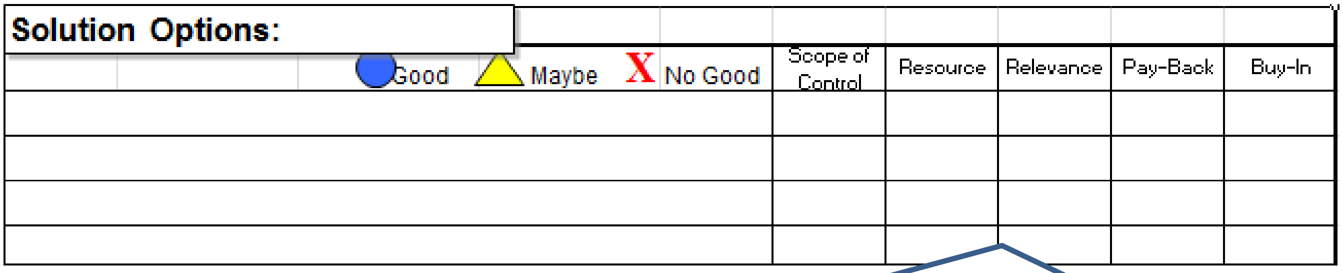
Helpful Links

Template:
Consider search words like:

Option Evaluation

(2 of 2)

Sample Option Evaluation Tool and Criteria



Solution Options:					
● Good ▲ Maybe X No Good	Scope of Control	Resource	Relevance	Pay-Back	Buy-In

Key Questions:

1) Are the solutions within control of those on the team?
2) Are the right resources available to implement the solution and make it stick?
3) Do the solutions clearly link to the root cause of the problem?
4) How do the solutions compare in terms of return on investment (pay-back)?
5) Have the leaders and people in the work area weighed-in on their support of the potential solutions?

Note:
You may have to conduct a loop from solution option to implementation via experiment to confirm results

Additional Items for Consideration in Evaluating Options:

- Project requirements, Sponsor’s needs and support of organizational mission & goals
- Risk factors, and related mitigations, that affect the development and implementation of the solution
- Staff training needs and development of the training materials
- Availability and ease of data gathering and measurement

Pilot (or Test) Plan

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

A pilot or test can serve as a trial run for your potential solution and can help determine if any adjustments are needed. There are four primary advantages of piloting or testing your improvement:

1. Limit capital and other resource expenditures (managing risk)
2. Assess true performance of design and/or solutions in a controlled but "live" environment
3. Identify additional improvements
4. Identify implementation tips and traps

How to Apply It

1. Use the pilot checklist to help you plan your pilot or test.
2. Involve the people who will be performing the pilot in your planning, communicating clearly the goals, the approach, and the requirements for data collection, etc.
3. Implement according to you plan and adjust as-needed (remember the purpose of the pilot is to work out the kinks prior to a full deployment)
4. Use information learned from the test or pilot to make improvements prior to the full deployment.

Pearls and Pitfalls

- ✓ Failure to test or pilot your improvements prior to a larger deployment may result in project failure.
- ✓ Ensure you have a feedback mechanism for pilot or test participants defeats a key purpose of the pilot.
- ✓ Without consistent, reliable data collection it will be difficult to gauge the success of your improvements.

Helpful Links

Template:
Consider search words like: PDSA/PDCA

Pilot (or Test) Plan

(2 of 2)

Pilot Plan Checklist

Use the following checklist to help you develop your pilot plan.

Actions	✓ Done
1. Create templates or documents	
2. Document or flow chart the new process	
3. Assign responsibilities/accountability and clear deadlines	
4. Draft instructions and/or user guides	
5. Identify who needs education or training	
6. Identify methods for communication/content delivery	
7. Create feedback loop and/or a way to track issues	
8. Identify metrics for evaluation (How will you know it works?)	
9. Select where or who will participate in the pilot	
10. Select how long to pilot*	
11. Implement identified improvements from pilot (e.g. edit templates, instructions, process, etc.)	
12. Communicate "why" we are changing (Recommend a leader sends initial communications)	
13. Provide instructions and/or user guides to pilot participants & train or educate individuals as needed	
14. Offer users a method for providing feedback or reporting issues	
15. Track progress (e.g. metrics) and document lessons learned	

*The duration of pilot typically depends upon process volume. For example, a process that with 50 units per month can be piloted in one month, whereas a process that has only 4 units per month may require a 3 month pilot.

The purpose of testing is not to punish, but to expose issues to be fixed. A test is only a failure if issues are not corrected.

Implementation Plan
(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

When you have successfully tested a solution or set of solutions, it becomes time to implement the solutions fully.

An implementation plan is designed to document, in detail, the critical steps necessary to put your solutions into practice. It is a step-by-step list of tasks with assigned owners and due dates, and helps the project team stay on track.

The tool allows for both planning and monitoring progress and is critical to the success of your project.

How to Apply It

1. Work with the project team to identify all of the tasks that are needed to implement the improvements. Remember these could include changes to existing forms, instruction guides, training on the new process, collecting data and more.
2. Ask team members to volunteer to be task owners.
3. Ask them to provide realistic deadlines. A good rule of thumb is to estimate the touch time (e.g. 4 hours) and then determine when in his/her existing schedule they can squeeze in the 4 hours of work.
4. The project leader, should monitor the implementation progress and raise issues or barriers to the sponsors.

Pearls and Pitfalls

- ✓ Unrealistic deadlines, either too tight or too long, can have a negative impact on implementation progress.
- ✓ Strive for accomplishing the majority of actions within 30 days to maintain momentum.
- ✓ Use the plan to conduct status reviews with the sponsor, identifying any barriers to determining the actions needed to overcome them.

Helpful Links

Template:
Consider search words like:

Implementation Plan

(2 of 2)

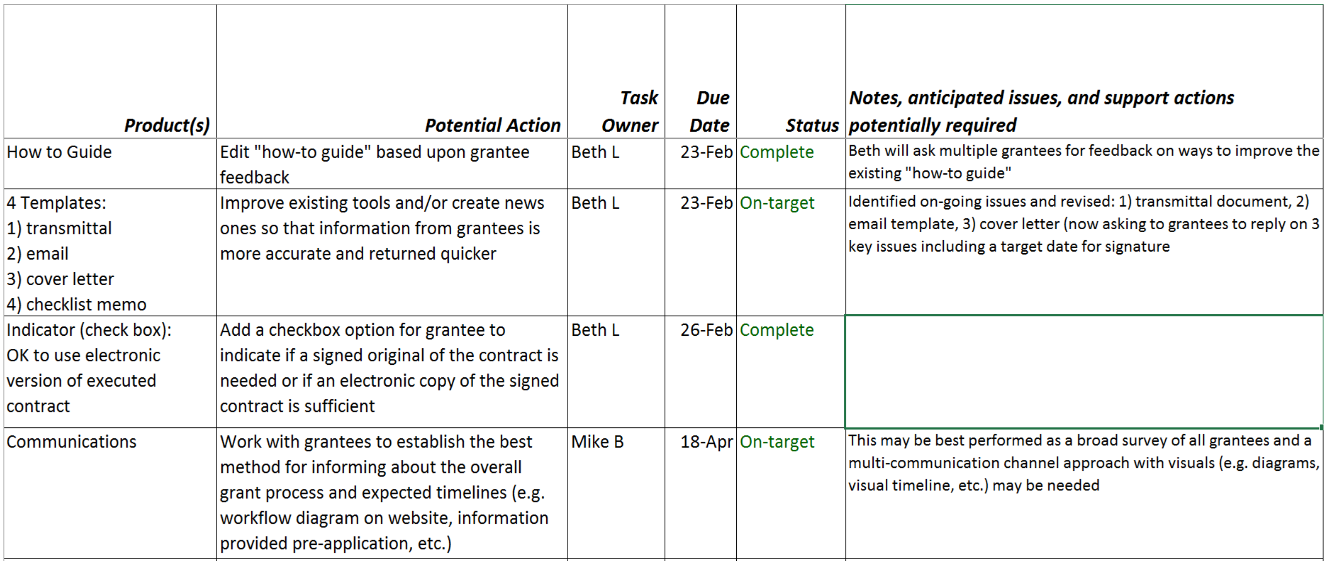
Key Tips:

1. At a minimum implementation should contain action or task description, task owner, due date and status indicator (e.g. in-progress, behind schedule, complete).
2. Use whatever tool you and the team have ready access to and are most comfortable with (e.g. Google sheets, MS Excel, Word, or project tracking software).
3. Don’t let perfection get in the way of progress – the implementation plan is meant to be a living document. Adjust the plan to adapt to changes or lessons learned during the implementation.

Sample Implementation Plan Template

#	Action	Owner	Timing	Notes (resources, etc)	Status

Example Excerpt of an Implementation Plan



Product(s)	*Potential Action*	*Task Owner*	*Due Date*	*Status*	*Notes, anticipated issues, and support actions potentially required*
How to Guide	Edit "how-to guide" based upon grantee feedback	Beth L	23-Feb	Complete	Beth will ask multiple grantees for feedback on ways to improve the existing "how-to guide"
4 Templates: 1) transmittal 2) email 3) cover letter 4) checklist memo	Improve existing tools and/or create news ones so that information from grantees is more accurate and returned quicker	Beth L	23-Feb	On-target	Identified on-going issues and revised: 1) transmittal document, 2) email template, 3) cover letter (now asking to grantees to reply on 3 key issues including a target date for signature
Indicator (check box): OK to use electronic version of executed contract	Add a checkbox option for grantee to indicate if a signed original of the contract is needed or if an electronic copy of the signed contract is sufficient	Beth L	26-Feb	Complete	
Communications	Work with grantees to establish the best method for informing about the overall grant process and expected timelines (e.g. workflow diagram on website, information provided pre-application, etc.)	Mike B	18-Apr	On-target	This may be best performed as a broad survey of all grantees and a multi-communication channel approach with visuals (e.g. diagrams, visual timeline, etc.) may be needed

Resistance Management

(1 of 2)

The Tool and Why it’s Valuable

Resistance to change is natural and is often cited as the single reason that improvement efforts are unsuccessful. Actions to surface and address resistance are a critical component of any change management effort. Because of normal resistance to change, early investments in change management are particularly effective during Lean projects. Piecemeal changes without broad commitment to active, real-time support by both leaders and front line employees are likely to result in only residual

One key tool to overcome resistance is an actively managed resistance plan. Active updates on resistant stakeholders help ensure Lean solutions are sustainable and accepted.

How to Apply It

1. Listen for individuals who have a lack of awareness about the change.
2. Categorize opposition (e.g., to new systems or processes).
3. Draft a resistance management plan to confirm the root cause of the resistance and prescribe actions. Resistance management plans usually have 5 key elements:
    1. Do change management right the first time — *set-up your initiative for success*
    2. Expect and plan for resistance — *don’t be surprised*
    3. Address it formally — *it won’t go away without actions*
    4. Identify the root causes — *don’t just react to symptoms*
    5. Engage the "right" resistance managers — *Enlist support to combat resistance*
4. Execute the plan and measure the impact of your actions on the attitudes of those most affected by the change.

Pearls and Pitfalls

- ✓ Failure to manage resistance throughout the project lifecycle can result in project failure.
- ✓ Expect it: Do not be surprised by resistance. Anticipate it and make a plan to respond to it.
- ✓ Resistance is often the expression of an unmet need. Once you understand the need, you can meet it.

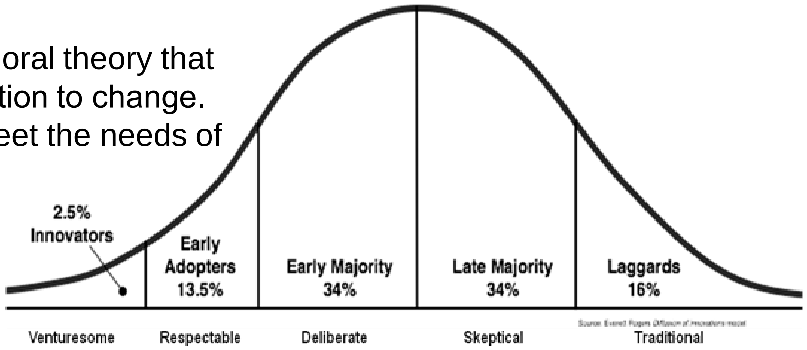
Helpful Links

Template:
Consider search words like: interference, buy-in, adoption, change readiness

Resistance Management

(2 of 2)

The graph at the right, is a behavioral theory that describes the people's predisposition to change. Resistance planning helps you meet the needs of each group.



Rogers Diffusion of Innovations

Plan Dimension	Guideline
Do change management right the first time—set-up your initiative for success	▪ Actively make a compelling case for change; help people get in touch with their teams' "WIIFMs" (what's in it for me?) ▪ Communicate the "why" before the how ▪ Ensure that you're providing people enough information and training to feel comfortable with the future
Expect and plan for resistance—don't be surprised	▪ Engage people to predict what resistance you'll receive and build these messages ▪ Establish escalating hierarchy to manage resistance, for example: 1. Listen and understand objections 2. Focus on the "what" and let go of the "how" 3. Remove barriers 4. Provide simple, clear choices and consequences 5. Create hope without promises 6. Show the benefits in a real and tangible way 7. Make a personal appeal
Address it formally—it won't go away without actions	▪ Engage in "open management-style" communications on an on-going basis, citing specific reasons for resistance (without noting the source) and offer alternatives.
Identify the root causes— don't just react to symptoms	▪ Examine systems and structures (Are incentives aligned? Do people have sufficient training to adopt the new way? Are old metrics binding us to the "old way"?)
Engage the "right" resistance managers— Enlist support to combat resistance	▪ Map key relationships and leverage these to address resistance with key players or groups ▪ Consider creating a team to help monitor resistance and help you respond; cross-functional and cross-style members on the team help you engage different sources of resistance ▪ Understand the root cause of the issue ▪ Is it lack of clarity? ▪ Is it lack of desire? ▪ Are incentives misaligned? ▪ Emphasize the benefits of change (WIIFM?). If necessary. . . ▪ Communicate the consequences for not supporting the change ▪ Implement the consequences for not supporting the change

Visual Management

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

Visual Management is presenting information to create at-a-glance understanding. It is a Lean strategy that employs the use of visual tools and indicators to engage people in the workplace, improve communication & understanding, coordinate flow, and direct response without requiring meetings. Using visual indicators is helpful because they can:

- Communicate performance measures, status and information.
- Show whether expected performance is being met.
- Alert people to abnormal conditions.
- Implement safety precautions.
- Provide immediate feedback to / from team members, supervisors, and managers.

How to Apply It

1. Evaluate the process you are improving or control and determine the measures of success for that process. Is it rate of completion? Number of defects? Should progress be constantly modeled? Are you focused on safety?
2. Select a visual tool that would be most helpful to your process and be creative!
3. After using your visual tools for a while, evaluate whether they are providing the information you need. If not, consider trying different tools.

Pearls and Pitfalls

✓ Colors, textures, and shapes can help people determine if something belongs or doesn't, but recall that many people are colorblind.

✓ Using a lot of text instead of images is hard habit to break, but well worth it!

✓ Not all information is best remembered using imagery techniques – so don't go overboard.

Helpful Links

Template:
Consider search words like:

Visual Management

(2 of 2)

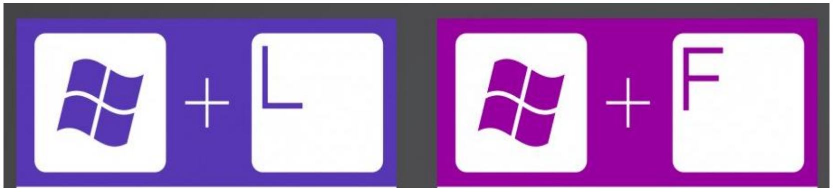
Key Points:

- Anyone can use visual management to improve their workplace, forms, and other means of communications.
    - Do your emails have multiple paragraphs instead of short bullets?
    - Are the forms you use for your job consistently missing information or incorrectly completed?
- Visual cues are all around us (e.g. stoplights, signs, the redline on your car, etc.). Learn to absorb ideas for visual management and apply them to your workplace
- In some cases, improved visual management can come from removing items from the work place, not adding them. (See 5S page 65)
- By using visual management you can quickly make improvements, reduce misunderstanding and errors.

Examples of visual management:

Use icons to convey meaning

Create quick reference cards instead of written tips



Lock Computer

Find Files

Create fillable PDFs or Word documents that include pop-up instructions and tips.

Produce a short video instead of long, written instructions

Why Using Visuals is Important:

- Research has shown that we remember visual images much easier and better than words.
- Since 65% of the population are visual learners, images are critical to engaging people
- Visuals:
    - Stick in long-term memory
    - Transmit messages faster
    - Improve comprehension

Standard Work

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

When Individuals perform processes in different ways inconsistent quality results. Standard work is the concept of documenting and sharing the "best known" way of performing a task or process so that all who perform the task can make use of it.

The benefits of Standard work include operating consistency, shorter training times, and reduced errors (waste). The fourth benefit is that it sets the stage for further improvements. Once employees become proficient, they can experiment with new methods and determine if they produce better or worse results than the accepted standard. If better, this new method can be documented and shared as the new "best known" way.

How to Apply It

1. Determine the process or portion of the process you are seeking to document.
2. Create a visual representation of the process steps via a process map, a screenshot, or some other method.
3. Add detail via call-outs or checklists, clarifying specific guidance as necessary
4. Share the document with others who perform the task. Edit to ensure the agreement on "the best way."
5. Use your standard work, updating and sharing changes as better methods are found.

Pearls and Pitfalls

- ✓ Visual instructions get used. Dense procedure manuals sit on the shelf. Strive for simplicity.
- ✓ Standard work should cover 80-90% of the tasks and scenarios in a given job. Trying to reach 100% is impractical.
- ✓ Standard work helps address one key portion of the "pace v. technique" argument. Having a common method makes it easier for newer employees to reach an acceptable level of productivity
- ✓ A "better" method is one that delivers measurable improvements in speed, quality, effort, etc. Don't by shy about measuring.

Helpful Links

Template:
Consider search words like:

Standard Work

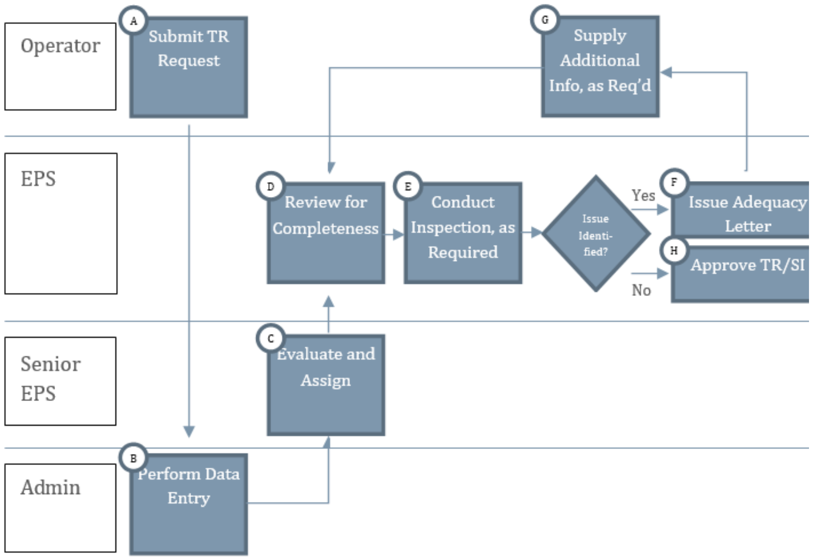
(2 of 2)

Example of Standard Work in Action

The Minerals program within DNR's Division of Mining Reclamation and Safety issues permits and inspects mine sites. They have more than 20 unique processes, each of which has statutory requirements, specific policies, etc. Establishing standard work has helped them decrease the learning curve for new staff and ensure that their distributed workforce executes intermittent processes consistently. Their standard work has 2 parts:

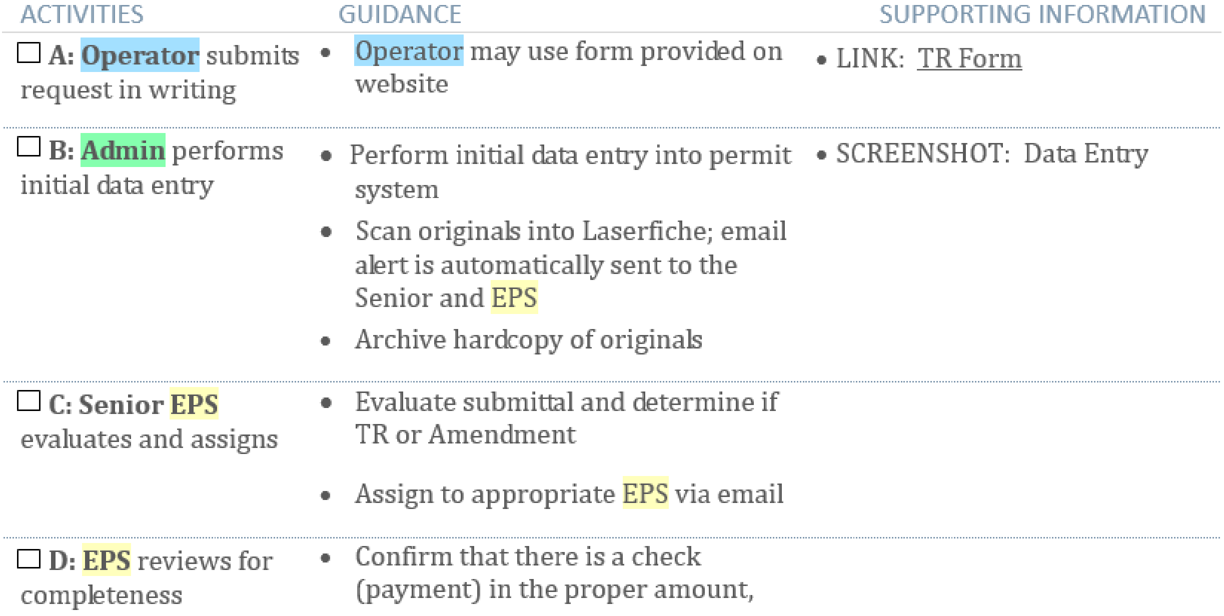
1. Each process in the document has a map of major activities…

PROCESS MAP FOR A TECHNICAL REVISION (TR)


Operator
A
Submit TR Request
G
Supply Additional Info, as Req'd
EPS
D
Review for Completeness
E
Conduct Inspection, as Required
Issue Identified?
Yes
No
F
Issue Adequacy Letter
H
Approve TR/SI
Senior EPS
C
Evaluate and Assign
Admin
B
Perform Data Entry

2. …followed by a checklist with corresponding details and links to screen shots, forms and statute/rule references.

PROCESS CHECKLIST FOR A TECHNICAL REVISION (TR)



ACTIVITIES	GUIDANCE	SUPPORTING INFORMATION
☐ **A: Operator** submits request in writing	- Operator may use form provided on website	- LINK: TR Form
☐ **B: Admin** performs initial data entry	- Perform initial data entry into permit system - Scan originals into Laserfiche; email alert is automatically sent to the Senior and EPS - Archive hardcopy of originals	- SCREENSHOT: Data Entry
☐ **C: Senior EPS** evaluates and assigns	- Evaluate submittal and determine if TR or Amendment - Assign to appropriate EPS via email	
☐ **D: EPS** reviews for completeness	- Confirm that there is a check (payment) in the proper amount,	

Short-Interval Management

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it’s Valuable

Driving continuous improvement requires real-time measurement of progress and taking action in the near-term to avoid missing milestones and disappointing customers. Typical measurement systems are built on intervals of one month or one quarter. While this may be fine for assessing trends, it does little to uncover the underlying causes of issues. This is where “short-interval management” comes in.

As the name implies, this technique involves frequently measuring performance versus planned goals.

How to Apply It

1. Work with employees to select a measure that is relevant to employees and meaningful to your customer
2. Select your interval by using the scale of scrutiny (if your customer measures weeks, you should measure in days; if they measure minutes, you should be analyzing in seconds)
3. Establish your target for each measure; strive to balance attainability and with the customer’s desires
4. Determine the format and location for the measures; strive to keep this simple
5. Track performance to target and engage with employees, potentially during daily stand-up meetings or “huddles”
6. Plot performance over time to demonstrate the value of this technique to your customers and to your employees

Pearls and Pitfalls

- ✓ Engage front-line staff in establishing and tracking the measures
- ✓ Display measures prominently in the workplace. Managers should go to the area where measures are displayed (often a board) rather than receiving a report in their office.
- ✓ Creating and communicating escalation thresholds ensures timely engagement of the leaders needed to solve an issue of a given magnitude (supervisor, middle manager, executive, etc)

Helpful Links

Template:
Consider search words like:

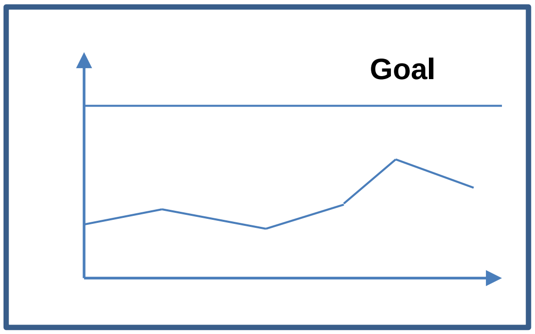
Short-Interval Management

(2 of 2)

Illustration: Short-Interval Management

Details

Trend



Trend information should display performance over time on a measure that is meaningful to customers and relevant to employees.

- For short-cycle processes, this might be units produced per week or percent of licenses issued within the allowed time.
- For longer-cycle processes, consider breaking down the process into phases and measuring the percent of milestones attained across the units in work (permits, investigations, etc).

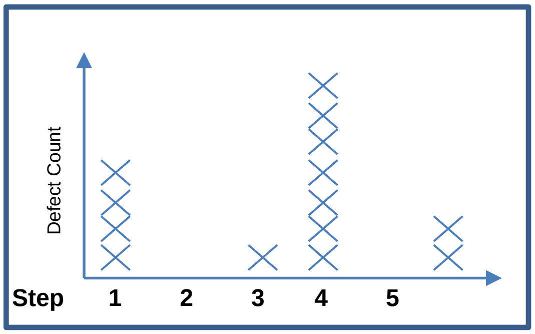
Period

Period	Goal	Actual	+/-
Mon	100	80	-20
Tues	100	99	-21
Wed	100	116	-5
Thur	100	109	+4
Fri	100	97	+1

A period tracking chart is used to record and display performance to the short-interval goals. Using pencil and paper on printed templates limits "measurement burden" and keeps employees engaged.

- For short-cycle processes, this might be units produced in a given day or half-day or percent of products/units (such as licenses) completed within the allowed time.
- For longer-cycle processes, this might be percent of milestones attained or possibly the number of hours used v. budgeted.

Issues



The issues log is the "magic" in this process. Each time a goal is missed, the root cause of the failure is noted. Over time, patterns develop that inform continuous improvement activities:

- For short-cycle processes, you might track the type of defects you witnessed or the frequency of certain issues you observe.
- For longer-cycle processes, this might be the phase where we were "off schedule" or the type of milestone missed.

Actions

Issue	Action	Owner	When

The actions table is a simple device where teams decide what they'll do to improve the process. This might involve performing additional training or it might mean simplifying a form that customers consistently fill-out incorrectly. Striving for practicality empowers teams to solve their own issues.
For issues beyond a work team's capability to solve, the "case for change" is made clear to leadership allowing them to take actions and address barriers to the teams' success.

Sustainment Checklist

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

The gains that Lean teams make through their project must be maintained and form the foundation for future improvement. The sustainment checklist is a tool that defines specific criteria to gauge sustainment of improvements and movement toward the targeted outcomes and the vision.

Used consistently at 30-day intervals, the sustainment checklist is a useful tool in ensuring that projects are meeting their targeted outcomes and that the operation is moving toward the established vision.

How to Apply It

1. Complete the first draft of the sustainment checklist within the first 30 days of approving the implementation plans.
2. Consider selecting a mix of sustainment criteria that are observable and specific measures of success for that process (are the new forms being used? Is the number of defects decreasing?).
3. Consider using ratings. For example:
   - 1 – No Evidence Change is Used,
   - 2 – Change is Used Inconsistently, and
   - 3 – Change is Always Used
4. Ensure that there are simple means to consistently capture these measures or observations.
5. After using your visual tools or reporting for a while, evaluate whether the criteria are providing the information you need. If not, consider trying different measures or criteria to better define how you can continually improve the operation.

Pearls and Pitfalls

- ✓ Failure to monitor measures makes the next cycle of improvement more difficult. You cannot build unless the foundation is solid.
- ✓ Engage others from outside your area or process to complete the sustainment checklist. They will be unbiased.
- ✓ Sponsors must take action quickly if improvements not sustaining. Not addressing issues in a timely fashion destroys employee confidence.

Helpful Links

Template:
Consider search words like:

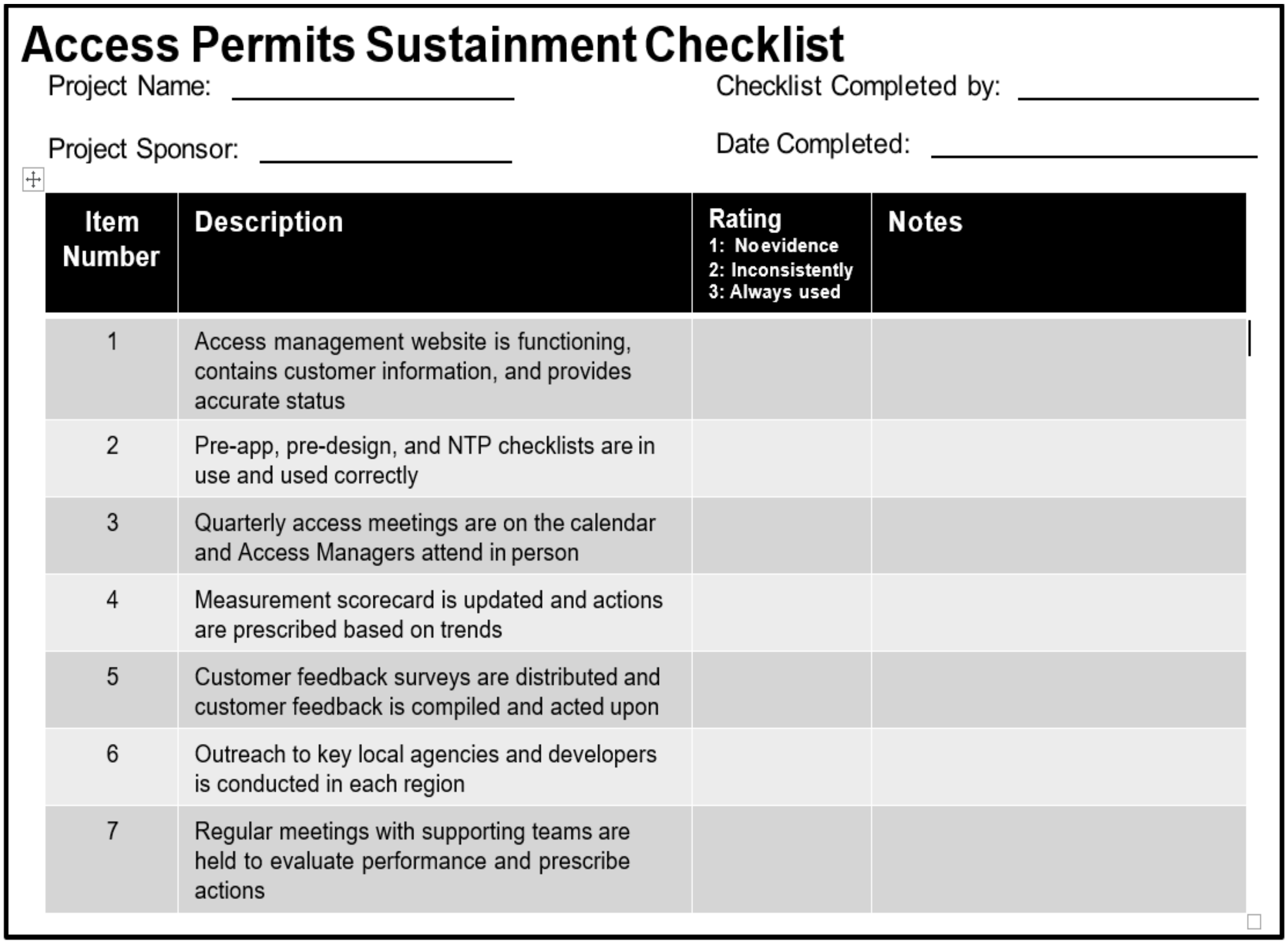
Sustainment Checklist

(2 of 2)

Key Point

- Utilizing this checklist reinforces the importance of sustainment and helps instill a deeper Lean culture of continuous improvement.
- Research suggest the failure rate for sustaining an improvement might be as high 70% - therefore this is a critical step to the overall success of your project.

Example of Sustainment Checklist



Access Permits Sustainment Checklist

Project Name: ____________________

Checklist Completed by: ____________________

Project Sponsor: ____________________

Date Completed: ____________________

Item Number	Description	Rating 1: No evidence 2: Inconsistently 3: Always used	Notes
1	Access management website is functioning, contains customer information, and provides accurate status		
2	Pre-app, pre-design, and NTP checklists are in use and used correctly		
3	Quarterly access meetings are on the calendar and Access Managers attend in person		
4	Measurement scorecard is updated and actions are prescribed based on trends		
5	Customer feedback surveys are distributed and customer feedback is compiled and acted upon		
6	Outreach to key local agencies and developers is conducted in each region		
7	Regular meetings with supporting teams are held to evaluate performance and prescribe actions		

After Action Review

(1 of 2)

S
Scope the Opportunity

O
Organize the Resources

L
Lean it!

V
Verify the Impact

E
Ensure Sustainment

The Tool and Why it's Valuable

After Action Reviews (AARs) are a simple, rapid method for assessing a project. An AAR can be done in less than 1 hour.

The AAR is format includes 4 simple questions, two focused on gaps in the process and two that help identify successes and future improvements

Documenting and sharing results from your AAR will help the same mistakes from being repeated

How to Apply It

1. Get individuals involved in the process and/or project together in-person to answer the 4 questions. Allow for approximately 10 minutes per question.
2. Provide the group with clear instructions
3. Ask these (4) questions one at a time:
    - What did you expect to happen?
    - What actually occurred?
    - What went well and why?
    - What can be improved and how?
4. Record participant responses and redirect the group if they go off-topic.
5. Document and share the results of the AAR
6. Make an action plan for improvements identified during the AAR.

Pearls and Pitfalls

✓ You must be a strong facilitator and keep the group focused on answering the question at hand; otherwise it is easy to get side-tracked and not finish the AAR.

✓ Not conducting the meeting in-person, (e.g. having individuals respond by email or over the telephone) loses the beneficial discussion

✓ An AAR isn't a complaint session. If someone identifies a problem, be sure to follow-up and ask for a solution – a way to make an improvement.

Helpful Links

Template:
Consider search words like: post-mortem

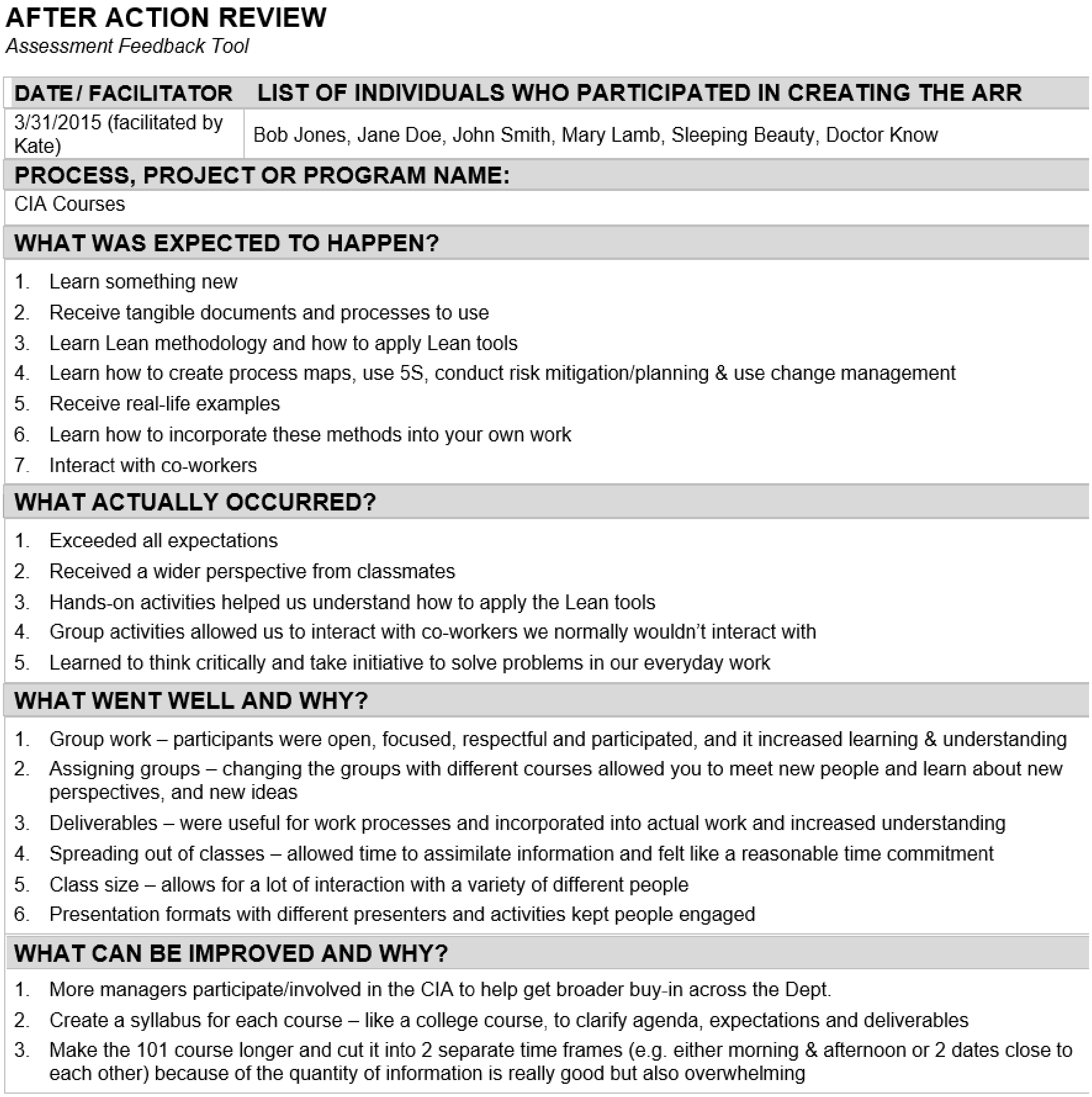
After Action Review

(2 of 2)

Tips for successfully facilitating an AAR:

1. Explain the concept and set expectations (ground rules) with the group
2. Appoint someone to act as the timekeeper (approximately 10 minutes per question)
3. Ask the participants one question at a time to keep the group focused
4. Use a white board of flip chart to capture responses & participant names

Example AAR



AFTER ACTION REVIEW

Assessment Feedback Tool

DATE / FACILITATOR	LIST OF INDIVIDUALS WHO PARTICIPATED IN CREATING THE ARR
3/31/2015 (facilitated by Kate)	Bob Jones, Jane Doe, John Smith, Mary Lamb, Sleeping Beauty, Doctor Know

PROCESS, PROJECT OR PROGRAM NAME:

CIA Courses

WHAT WAS EXPECTED TO HAPPEN?

1. Learn something new
2. Receive tangible documents and processes to use
3. Learn Lean methodology and how to apply Lean tools
4. Learn how to create process maps, use 5S, conduct risk mitigation/planning & use change management
5. Receive real-life examples
6. Learn how to incorporate these methods into your own work
7. Interact with co-workers

WHAT ACTUALLY OCCURRED?

1. Exceeded all expectations
2. Received a wider perspective from classmates
3. Hands-on activities helped us understand how to apply the Lean tools
4. Group activities allowed us to interact with co-workers we normally wouldn't interact with
5. Learned to think critically and take initiative to solve problems in our everyday work

WHAT WENT WELL AND WHY?

1. Group work – participants were open, focused, respectful and participated, and it increased learning & understanding
2. Assigning groups – changing the groups with different courses allowed you to meet new people and learn about new perspectives, and new ideas
3. Deliverables – were useful for work processes and incorporated into actual work and increased understanding
4. Spreading out of classes – allowed time to assimilate information and felt like a reasonable time commitment
5. Class size – allows for a lot of interaction with a variety of different people
6. Presentation formats with different presenters and activities kept people engaged

WHAT CAN BE IMPROVED AND WHY?

1. More managers participate/involved in the CIA to help get broader buy-in across the Dept.
2. Create a syllabus for each course – like a college course, to clarify agenda, expectations and deliverables
3. Make the 101 course longer and cut it into 2 separate time frames (e.g. either morning & afternoon or 2 dates close to each other) because of the quantity of information is really good but also overwhelming

Part V: Appendix

Lean 2.0 for Colorado

Our Lean Journey

Colorado formally began utilizing Lean in 2011. In the first 5 years, employee teams have executed hundreds of projects, streamlining processes and saving immeasurable time and resources for our employees and our customers.

In the spirit of continuous improvement we need to take a hard look at how well it is work. The truth is that our method of process improvement…needs some process improvement.

We've learned some lessons that are helping us chart a new course. Here's what to expect:

Lesson	What we'll do about it
Simple is powerful	Simplify materials and remove jargon; strive for simple, engaging materials that are self-explanatory and easily accessed
It takes all of us	Create ways for every employee, even those without training, to spot waste in their work area…and then do something about it.
Innovation is valuable	Adopt "better practices" from ALL state departments and continually update materials to better equip our solvers
Linking improvements is critical	Develop knowledge around how align strategic Lean projects and focused front-line efforts to ensure our hard work delivers maximum benefit

Why Lean Is Critical for Colorado

Colorado State government faces several operational challenges:

- **We have challenging missions:** Public servants are asked to perform challenging tasks for which there is no profit motive. We fill gaps in our communities, striving to make sure that we protect our citizens, our environment, and our economy.
- **We have complex processes:** Many of our processes and systems are antiquated and no longer make sense. They have not been designed for our current reality and don't always help our employees deliver the results that matter for their customers.
- **Our workforce is changing:** As of 2016, it's estimated that 40% of the State government workforce will be eligible for retirement within 5 years. We rely on their institutional knowledge and that knowledge is not faithfully recorded.

Lean helps us address these challenges by focusing on value, streamlining processes, and making jobs more fulfilling.

Expectations

Clear Expectations
+ Direct Communication
Improved Outcomes

General Expectations

- Incremental improvements are better than no improvements
- Lean methods/tools are used to create capacity (where people state they are too busy)
- Lean is used to solve a wide-variety of operational problems
- Use Lean methods and tools as part of a career development:
    - Leaders can use Lean to align and focus the organization's operations
    - Managers can use Lean projects to help give their staff leadership opportunities
    - Frontline employees learn effective problem solving skills
- A Lean culture (culture of continuous improvement) takes 5 – 10 years to develop

Role	Expectations
Lean Champion	• Acts as Advisor/Coach to Agency – the "go-to" person for Lean • Takes Initiative – continuously deploys lean through a variety of methods (e.g. newsletters, training, coaching, projects, etc.) • Remains Persistent – makes incremental progress (does not take an all or nothing approach) • Is a Change Agent – uses change management to increase adoption • Shares Lessons Learned – across agency and with other Lean Champions
Senior Leaders	• Supports Lean – makes Lean part of the agency's strategic plan and/or values • Acknowledges Managers and Staff – publically and/or privately recognizes individuals who are making improvements • Incorporates Lean into Management PDs and Performance Plan – makes 10% of manager's duties related to supporting & using Lean
Managers	• Uses Lean Methods/Tools – emulates Lean behavior by using Lean to solve problems • Supports Lean – encourages staff to make improvements using Lean methods/tools • Incorporates Lean into Staff PDs and Performance Plans – works with staff to develop relevant measures related to process improvements • Removes Barriers – helps staff prioritize work so improvements can be implemented • Is Open to Testing New Ideas – allows for pilots of new processes by not discouraging staff from participating
Frontline Staff	• Identifies Areas for Improvement in Own Work • Learns Lean Basics • Remains Open to New Ideas

Common Lean Myths

Myth *Lean is…*	Reality *Lean…*
Code for cutting staff	Helps free up staff capacity by focusing on value added activities and that may cause a few job duties to change
Only useful in manufacturing	Has been successfully used in Federal, State and Local government for more than a decade
Used only by handful of people	Is not a program or initiative – it is a way of thinking and operating that everyone in an organization uses
Only beneficial for private industry because the government doesn't have customers	Defines customers as the end-user of a process; therefore the customer may be internal (another division or section within an organization) or external (clients, providers, citizens, legislature, etc.)
Can't be used without extensive training	Uses common sense tools and methods, many of which can be learned in minutes and used by anyone
Not applicable to what I do, my work is unique	Provides a basic framework for solving problems and improving processes from policy and Rule making to processing invoices and hiring and more…
The flavor of the month or year	Is non-political; Lean continues in government through several administration and political changes
Not related to our mission or strategic plan	Is how an organization's mission and strategic plan gets done by applying Lean methods and tools to day-to-day work
Too time consuming	Is a means of building capacity (e.g. spend 3 hours making an improvement that will save you 80 hours per year)
A substitute for leadership	Requires leadership support, otherwise Lean efforts are likely to fail
Another task that leads to employee burnout	Helps to prioritize limited resources and time so that individuals are focused on value added activities
A method that reduces the individual to a part of a process	Is a people-centered approach that empowers employees and managers to collaborate, solve problems and make improvements that ultimately benefit the customer
Only focused on eliminating steps in a process	Creates an environment where problems are viewed as opportunities and sharing lessons learned is common