please mute your phone or microphone. thank you!
Remember to unmute your phone or microphone when you ask or answer questions!
TECHNOLOGY

Contact:

INTERN

1 chat via Zoom

2 send emails to:
   meagan.brown@state.co.us
AGENDA

1 INTRODUCTIONS AND ROLL CALL

2 PRESENTER 1:
Kismet A. Weiss - Administrator, Office of Continuous Improvement; ADOT

3 PRESENTER 2:
Troy Tusup - Chief, Innovative Business Solutions; CALTRANS

4 LEAN INTERCHANGE WEBSITE

5 OPEN FORUM

6 CLOSE OUT
Remember to unmute your phone or microphone when you ask or answer questions!
The ability to learn is the most important quality a leader can have.

-- Sheryl Sandberg, COO of Facebook
ADOT’s
*Management System:*
Lean
Transformation Journey
October 2017
TODAY’S TOPICS

1. ADOT’s transformation goal
2. ADOT’s transformation roadmap
3. Tiered Huddle method
4. Tiered Huddle implementation
ADOT’s Transformation Goal

“Everyone, everywhere solving problems, every day.”

How did we do yesterday?
Where was the waste?
How can we do it better today?

3,763 problems solvers:

*everyone* has problem solving skills, the opportunity and expectation to make improvements, and is given the respect and tools to improve work processes
ADOT’S LEAN TRANSFORMATION

ADOT’s True North: Making Transportation Personal
Mission: Moving AZ – To become the most reliable transportation system in the nation.
Goal: Everyone, everywhere, solving problems every day

February 2016: ADOT Office of Continuous Improvement
September 2016: Honsha trains Senior Leadership
February 2017: 12 Agency level PDCAs launched
September 2017: 14 Embedded lean coaches hired

“Government at the Speed of Business”
- Arizona Governor Doug Ducey
ADOT’s Transformation Roadmap

- Concurrent phases
- Building phases
- Roadmap check points

Ongoing

Building Processes, Producing Results

Building the Cornerstone Activities

Strengthening Internal Resources and Becoming Self-Sustaining

Solidifying new culture
- Develop organization capability
- Establishing autodiagnosis/sustaining capability
- Ongoing Customer Satisfaction/Investor Value Kaizen

Expansion of CI Transformation throughout ADOT
- Sharing Achievements/Process kaizen
- Process Kaizen/Individual Kaizen

Kaizen Skill Growth and Process Kaizen Training

Mile Deep Value Stream Transformations

HR Tool Implementation

Leadership Transformation: Training, Performance Measures, Activities
- Team member foundation training
- HR Lean Organization Development

Current State Assessment, Vision, and Roadmap

Establish CI Executive Team
- Current state assessment
- Vision casting
- Develop Roadmap

Scorecard/Matrix Review
- Roadmap Leaders' vision
- 2 Mile Deep project start

April 2016
- Phase 1 Leader training complete
- All Agency Leaders Conference
- Significant Mile Deep progress
- Leader Standard Work/Part II

Sept 2016
- Phase 2 Leader training complete
- Trainers certified
- 2 Mile Deep project start
- Leaders Conference followup

April 2017
- Phase 3 Agency Expansion
- Embedding coach kaizen
- All employee kaizen trainings
- All Agencies' Leaders Conference

April 2018
- Sustaining activities
Strategic Deployment: Hoshin Kanri (X-matrix)

Phase 2 training
- 72 division leaders complete Lean Leader Learning series
- Lean 30-minute Computer Based training for front line
- Honsha certified 7 ADOT trainers
- 12 hands-on PDCA learning projects

Phase 3
- 72 additional leaders in Lean Leader Learning series
- Launched AMS Manager Series of classes

Many process improvements completed or in process
- 3,641 Kaizens implemented agency wide
- 2 Mile Deeps completed

Since our ADOT update last year...
Manager’s Role:

Develop Problem Solvers

Because our goals is to develop problem solvers everywhere, our leaders’ role changes.

- Instead of managers working as firefighters, their new role is to continually coach to develop critical thinking skills

So we need to provide the managers a favorable environment for problem solving, including the tools and the time.
ADOT’s **Problem Solving System:**

**TIERED HUDDLES**

We believe that by working our tiered huddle process, with cycles of huddles and gembas, that we will develop problem solvers everywhere.

The Problem Solving System is made up of some standard elements and behaviors.
Four Huddle Elements for Problem Solving

1. Problem Staging Grid
2. Process Metrics
3. Problem Register
4. Problem Solving Worksheet
5. Problem Solving Worksheet
6. Problem Solving Worksheet
Element 1: Problem Staging Grid
Element 2: Process Metrics
Element 3: Problem Register

<table>
<thead>
<tr>
<th>Problem Solving Register</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem Register</td>
</tr>
</tbody>
</table>

**HUDDLE BOARD – TIER 1**

**Process Metrics**

**Division / Unit: W. Phoenix MVD**

**Problem Solving Register**

<table>
<thead>
<tr>
<th>Issue or Problem Statement</th>
<th>Owner</th>
<th>Issue Date</th>
<th>Due Date</th>
<th>Define Problem</th>
<th>Analysis</th>
<th>Development &amp; Test</th>
<th>Execution</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit Card Machine not Updated</td>
<td>V</td>
<td>7/11</td>
<td>7/13</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Missing labels in workshop</td>
<td>N</td>
<td>Kamena</td>
<td>7/11</td>
<td>7/13</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Process to office</td>
<td>V</td>
<td>Kamena</td>
<td>7/11</td>
<td>7/13</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Minor Signature on Data. Photo</td>
<td>V</td>
<td>Anber</td>
<td>7/11</td>
<td>7/13</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Kirk Dear</td>
<td>N</td>
<td>Kamena</td>
<td>7/11</td>
<td>7/13</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>No road test list</td>
<td>N</td>
<td>Anber</td>
<td>7/11</td>
<td>7/13</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Fire alarm for 55-middle day</td>
<td>N</td>
<td>Kamena</td>
<td>7/11</td>
<td>7/13</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Correct bus route adjustment</td>
<td>V</td>
<td>Kamena</td>
<td>7/11</td>
<td>7/13</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Credit machine is 79 not working</td>
<td>N</td>
<td>Anber</td>
<td>7/11</td>
<td>7/13</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>O/F machine is 79 not working</td>
<td>V</td>
<td>Anber</td>
<td>7/11</td>
<td>7/13</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>BM machine is 79 not working</td>
<td>V</td>
<td>Anber</td>
<td>7/11</td>
<td>7/13</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>BM machine is 79 not working</td>
<td>N</td>
<td>Anber</td>
<td>7/11</td>
<td>7/13</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>BM machine is 79 not working</td>
<td>V</td>
<td>Anber</td>
<td>7/11</td>
<td>7/13</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
</tbody>
</table>
## Element 4: Problem Solving Worksheet

**Everyday Problem Solving:**

<table>
<thead>
<tr>
<th>Define Problem</th>
<th>Analyze Root Causes</th>
<th>Develop &amp; Test Countermeasures</th>
<th>Adopt &amp; Standardize Countermeasures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define Problem:</td>
<td>Analyze Root Causes:</td>
<td>Develop and Test Countermeasures (CM):</td>
<td>Adopt and Standardize Countermeasures:</td>
</tr>
<tr>
<td>2. Breakdown the problem</td>
<td></td>
<td>6. Implement Countermeasures</td>
<td>(capture task, create standard work and visual management)</td>
</tr>
<tr>
<td>3. Set a target to close the gap in terms of the final problem selected</td>
<td></td>
<td>7. Check Results</td>
<td></td>
</tr>
</tbody>
</table>

**Problem Solving Worksheet**

(Use this form to document your problem solving process. Show your work.)

<table>
<thead>
<tr>
<th>Owner(s)</th>
<th>Start Date</th>
<th>Due Date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Issue or Problem Statement</th>
<th>Target</th>
<th>Actual</th>
<th>Gap</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Define Problem:</th>
<th>Analyze Root Causes:</th>
<th>Develop and Test Countermeasures (CM):</th>
<th>Adopt and Standardize Countermeasures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Breakdown the problem</td>
<td></td>
<td>6. Implement Countermeasures</td>
<td>(capture task, create standard work and visual management)</td>
</tr>
<tr>
<td>3. Set a target to close the gap in terms of the final problem selected</td>
<td></td>
<td>7. Check Results</td>
<td></td>
</tr>
</tbody>
</table>
Huddle **Behaviors for Problem Solving**

Work teams at every level:
- Conduct **Huddle meetings**: standard, recurring, brief
- Find and document problems on the Problem Register
- Follow the 8-step Problem Solving Process to **solve problems at the root** and prevent recurrence
- Escalate out of scope problems to the right huddle (cross-functional or up)

Managers at every level:
- **Horizontal** Problem Solving Gemba walks
- **Vertical** Problem Solving Gemba walks
- Provide scheduled problem solving time to employees
- Coach team through the problem solving process
ADOT’s **Problem Solving System:**
**TIERED HUDDLES**

We believe that by working our *tiered huddle* process, with *cycles of huddles and gembas*, that we will develop problem solvers everywhere.

**Implementation plan:**
- Design (June)
- Train (July, August)
- Rollout (September - March)
- Improve through continuous cycles of use
**Tiered Huddle Implementation Design**

**Mile Wide:** Reach across the whole agency with Tiered Huddle System

**Mile Deep:**
- Fully implement in key areas
- Implement fully functional **Tiered Huddle system** in 22 work units to create experts
- And spread the skills from those 22 groups across ADOT
**Tiered Huddles: Mile Wide Rollout**

**Mile Wide:** Reach across the whole agency with key elements, from the top down

**Progress and plan:**
- Establish an ADOT Tiered Huddle System (Honsha partners & OCI)
- Trained 70 ADOT senior leaders to teach our system (learn & do)
- Leaders taught a four-hour Tiered Huddle Problem Solving Workshop for all managers and supervisors
- Provided Problem Registers (large, laminated) across the state, and other forms and resources on the ADOT OCI website
- Create Leader Standard Work for Managers to Gemba walk with the purpose of developing Problem Solvers using the system

Leaders create pull for the implementation by coaching it and expecting it in the workplace, not from an agency “Center of Excellence” or training department.
Tiered Huddle: Mile Deep Rollout

**Project:** Create 22 showcase examples of functioning tiered huddle systems that **successfully uncover problems** and provide coaching opportunities to develop problem solvers.

**Project team:** ADOT Lean coaches, managers, front line team and Honsha consultants

1. 4 meetings, 4 hours each, over 2 months
2. Share a checklist of what’s expected
3. Help the team set up the board, and practice mock huddles and gembas

**Next step, tools to sustain:**
- Horizontal and vertical Problem Solving Gemba walks

**Mile Deep:** Implement fully functional **Tiered Huddle system** in 22 work units.
Tiered Huddle Check List

After each implementation meeting with the work unit, the team self-assesses their Huddle Board and the Huddle Meeting behaviors.

<table>
<thead>
<tr>
<th>Part I: Huddle Board Required Items</th>
<th>Y/N</th>
<th>Owner?</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Are Huddle Team Members listed (including Huddle Board Leader and backup)?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Is the related Huddle posted?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Is rating tool/factor identified?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Is Huddle time and date posted?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Are script/agenda elements posted?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Are blank Kaizen forms &amp; Problem Solving Worksheets posted/available?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Is Problem Staging Grid (PSG) posted?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Does PSG contain metrics, standards, and escalation procedures for all Tiers?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Are metrics posted and in graphical form with actual vs. target easily identified?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Is Problem Register posted?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Are Work in Progress (WIP) Problem Solving Worksheets posted and separated by the following steps: 1. Define the Problem, 2. Analyze Root Cause, 3. Develop &amp; Test Countermeasures, 4. Adopt &amp; Standardize?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Is “Vertical” Gembawalk schedule for Tier 2 &amp; 3 Leaders/backups posted?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part II: Huddle Meeting Behaviors</th>
<th>Y/N</th>
<th>Owner?</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. Does the Tiered Huddle contain at least 3 Tiers and includes the frontline?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Do Huddles occur as scheduled?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Do Huddles follow the agenda?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Are solved problems &amp; Kaizen forms moved to “Success” section of board?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Do Leaders have a plan of action for a full Problem Register?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Has each Huddle been conducted showing evidence of problem identification, assignment, notification, escalation, &amp; resolution?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Has a vertical flip-down Tier I (Gembawalk been conducted to verify alignment?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Has a horizontal (across peer Tier system check) Gembawalk been conducted?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. Has the knowledge and technique been shared across additional ADOT group/stakeholders?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
OTHER WORK IN PROGRESS

- 5S at Maintenance Yards
  - Reduce overall inventory, Hub & Spoke distribution model
- AMS Manager Series of classes
  - 4 topics for all managers and supervisors
- Problem solving teams in action:
  - Reduce Traffic Fatalities: Motorcycle safety, WWD
  - Ignition Interlock process
  - Transit Grants
  - Project Close Out
  - Light Duty Fleet Management
Contact Information

Kismet A. Weiss

- Administrator
- Office of Continuous Improvement, Arizona Department of Transportation
- 206 S. 17th Avenue MD100A
  Phoenix, AZ 85007
- Office: 602.712.8827
- Cell: 480.825.5536
- Email: kweiss@azdot.gov
- www.azdot.gov
Session focus:
Change leadership, daily problem solving, visual communication, coaching, a holistic view of statewide lean management

Presenter:
Robert Woods
State Lean Leader, Administrator of Government Transformation Office
State of Arizona, Government Transformation Office
Innovative Business Solutions

Presented By:
Troy Tusup
Chief, Innovative Business Solutions
Transportation Lean Forum....

- Caltrans Lean Journey
- Caltrans Current State
- Innovative Business Solutions
- Challenges and Accomplishments
How It All Began....

**Governor’s Office of Business and Economic Development GO-Biz**

The Governor’s Office of Business and Economic Development (GO-Biz) was created by Governor Edmund G. Brown Jr. to serve as California’s single point of contact for economic development and job creation efforts. GO-Biz offers a range of services to business owners including: attraction, retention and expansion services, site selection, permit streamlining, clearing of regulatory hurdles, small business assistance, international trade development, assistance with state government, and much more.

**Lean 6-Sigma Program**

GO-Biz has partnered with the Government Operations Agency to offer Lean 6-SIGMA Training to state agencies to pilot a Lean 6-SIGMA training program that would specifically address process-based issues within state departments that were causing delays in services to both internal and external stakeholders. Over a 6 month period, participants received training on complex analytical and statistical tools that identify waste and inefficiencies in processes.
Looking To The Future...

1. Create pool of Green Belts having executed successful L6S projects
2. From pool, develop Black Belts to lead and coordinate efforts within each organizational area
3. Develop Master Black Belt to head up a Lean Six Sigma program and oversee all L6S efforts
Caltrans Current State....

- Since January 2015, Caltrans delivered 3 cohorts
- Caltrans participation with Go-Biz (4 cohorts)
- 23 Green Belts and 3 Black Belts
Cohort 4 - GG and BB projects

Final Reports - April 2017 - 16 projects

<table>
<thead>
<tr>
<th>Project Title/Description</th>
<th>Program Owner</th>
<th>primary metric</th>
<th>Baseline</th>
<th>Initial Report out</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOE Parts Procurement Time</td>
<td>Equipment</td>
<td>procurement time (days)</td>
<td>36</td>
<td>15</td>
</tr>
<tr>
<td>Test Methods Update Time</td>
<td>DES - METS</td>
<td>update time (days)</td>
<td>258</td>
<td>45</td>
</tr>
<tr>
<td>Methacrylate Resin Materials</td>
<td>DES - METS</td>
<td>authorization time within 5 days (percent)</td>
<td>14</td>
<td>80</td>
</tr>
<tr>
<td>Construction Support Costs</td>
<td>Construction</td>
<td>support costs (percent)</td>
<td>22</td>
<td>TBD</td>
</tr>
<tr>
<td>Audit Findings Issuance Time</td>
<td>Audits &amp; Investigation</td>
<td>issuance time (days)</td>
<td>530</td>
<td>300</td>
</tr>
<tr>
<td>Airport Data Collection</td>
<td>Aeronautics</td>
<td>defects per data set</td>
<td>3.5</td>
<td>TBD</td>
</tr>
<tr>
<td>E-76 Processing Time</td>
<td>Local Assistance</td>
<td>processing time within 14 days (percent)</td>
<td>15</td>
<td>62</td>
</tr>
<tr>
<td>FRA Report Defects</td>
<td>Rail &amp; Mass Trans.</td>
<td>defects per report</td>
<td>41</td>
<td>4</td>
</tr>
<tr>
<td>Traffic Census</td>
<td>Planning</td>
<td>missed count rate within scheduled time (%)</td>
<td>48</td>
<td>99</td>
</tr>
<tr>
<td>Salary Advance Collection</td>
<td>Acct/HR</td>
<td>% collected within same pay period</td>
<td>53</td>
<td>88</td>
</tr>
<tr>
<td>Director’s Office Tracking System</td>
<td>Director’s Office</td>
<td>processing time (days)</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td>Unnecessary Real Estate Holds</td>
<td>Right of Way</td>
<td>percent of unnecessary hold</td>
<td>54</td>
<td>TBD</td>
</tr>
<tr>
<td>Local Development Intergovernmental Report</td>
<td>Planning</td>
<td>errors and omissions per report</td>
<td>3.42</td>
<td>0.25</td>
</tr>
<tr>
<td>Building Projects Design Time</td>
<td>Eng Services</td>
<td>design time (days)</td>
<td>455</td>
<td>91</td>
</tr>
<tr>
<td>Black Belt cohort</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Project Set-up (CAS/CAM)</td>
<td>Accounting</td>
<td>Reduce approval time (days)</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Asphalt Material Sample Testing</td>
<td>DES - METS</td>
<td>Reduce turnaround time (days)</td>
<td>48</td>
<td>15</td>
</tr>
<tr>
<td>Local Assistance Invoice Processing</td>
<td>Local Assistance</td>
<td>Reduce Errors in Invoices</td>
<td>2.18</td>
<td>0.2 (1 in 5)</td>
</tr>
<tr>
<td>Go-Biz Cohort</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traffic Collision Investigation Time</td>
<td>Traffic - D5</td>
<td>investigation time (hours)</td>
<td>46.6</td>
<td>19.6</td>
</tr>
</tbody>
</table>
Implementation Strategy...

Perform the activities concurrently to achieve full implementation within a 2.5 year plan
Lessons Learned & Critical Factors...

1. Set the Tone At The Top - Executive Management Buy-In & Support
2. Proper Scoping & Metrics/Measurements - Smaller is better
3. Proper Alignment of Project and Sponsors - Distribution
4. Better Planning and Slower steps - team development
5. Middle Management pushback - expectations
New Office - Innovative Business Solutions

▶ One Stop Shop for Help?
▶ Process Improvement Type
   ▶ Lean, L6S, Value Analysis
▶ Benefits to Managers
▶ Benefits to Employees
▶ Custom Toolbox

Innovative Business Solutions (IBS) provides trained professionals to improve business processes, organizational performance, and facilitiation services to improve employee morale by using proven methodologies. The IBS team is a resource to Managers/Supervisors to minimize process fatigue. Eliminating wait time, rework, and errors provides a vehicle to process improvements, efficiencies, and employee satisfaction while adding value to our customers. Additionally, these efficiencies will help Offices and Divisions meet the Department’s strategic goals.

Process improvement is about looking at our processes—examining them and understanding their current state. It’s about identifying our customers and learning what they want, which is the true definition of value. To create value, we must map the process, address the root cause, and eliminate the waste and non-value added steps from our processes. We use a variety of successful and proven methodologies, like Lean, Lean 6 Sigma, and Value Analysis.

What’s in It for You?
How Can We Help? Start Here!
Resources
What’s in it for You?

How Can We Help?

- Productivity
- Timeliness
- Quality
- Employee Engagement
- Staff Retention
- Succession Planning
- SB1 - $100M/year savings
Start Here

How Can We Help?

- Lean Workshops
  - Just Do Its, Lean, L6S, DMAIC, Kaizen, DFSS

Value Analysis

- Strategic Planning, Organizational Alignment, Business Planning, Decision Analysis, Summits, and Facilitation

Start your Process Improvement in just 3 Easy Steps

1. Decide what type of process improvement you need (see diagram below).
2. Complete a Task Order form.
3. Schedule a meeting with Troy Tusup — TTusup@dot.ca.gov or (916) 653-3533.

Step 1: Decide What Type of Process Improvement You Need

The flowchart below is intended to help you determine which type of process study or methodology best fits your needs. It should be noted that there are times that several different types of studies may be appropriate. For example, a Strategic Planning study might first establish the direction of the program, followed by a VA Function Analysis study to define supporting processes and procedures.

Business Solution Decision Tree

(click graphic to launch PDF)

If your challenge does not neatly fit into this flowchart, contact Troy Tusup to discuss a customized approach. Follow the links below for more information and examples.
Decision Tree

START HERE

1. What do you want to do?
   - Improve a Process

2. Is the existing process:
   - Yes
     - Is the process truly functional (internal/external)?
       - Yes
         - In solution already known?
           - Yes
             - Do VA Summit
               - 1-3 workshop days
               - 3-6 months
           - No
             - Process Design by Data or Function
               - 1-5 months
             - Do VA Summit
               - 1-3 workshop days
               - 3-6 months
         - No
           - Change for 6-sigma (DFSS)
             - 1-5 months
             - In solution already known?
               - Yes
                 - Do VA Summit
                   - 1-3 workshop days
                   - 3-6 months
               - No
                 - Process Design by Data or Function
                   - 1-5 months
           - No
             - In solution already known?
               - Yes
                 - Do VA Summit
                   - 1-3 workshop days
                   - 3-6 months
               - No
                 - Process Design by Data or Function
                   - 1-5 months
   - No
     - In solution already known?
       - Yes
         - Do VA Summit
           - 1-3 workshop days
           - 3-6 months
       - No
         - Process Design by Data or Function
           - 1-5 months

3. Achieve consensus among numerous stakeholders
   - Yes
     - In a critical decision needed?
       - Yes
         - VA Decision Analysis
           - 1-3 workshop days
           - 1-2 months
       - No
         - VA Business Planning
           - 2-4 workshop days
           - 1-2 months
     - No
       - In a critical decision needed?
         - Yes
           - VA Organization Effectiveness
             - 3-6 workshop days
             - 1-4 months
         - No
           - VA Strategic Planning
             - 3-6 workshop days
             - 1-4 months

4. Do we have consensus on our direction?
   - Yes
     - Need to prioritize activities &/or allocate resources?
       - Yes
         - Avoiding Staring at the Goal
           - 1-4 workshop days
           - 1-4 months
       - No
         - VA Function Analysis (3-6 days)
           - FADT Diagram
           - Cost
           - Performance Attributes
           - Standardization
           - Risk Analysis
   - No
     - In a critical decision needed?
       - Yes
         - VA Decision Analysis
           - 1-3 workshop days
           - 1-2 months
       - No
         - VA Business Planning
           - 2-4 workshop days
           - 1-2 months

LEAN (2 days)
- Elimination of Waste and Non-Value Added Steps
- Improve Speed, Cycle Time
- Standardization
- Inventory Management
- Cost Reduction
- Variance Reduction

KAIZEN (3-5 days)
- Quick Strike
- Process Mapping
- Root Cause Analysis
- Single Tactical Force
- Ultimate Quick Win
- Continuous Improvement
- Standardization

DMAIC (1-5 months)
- Complex Problems
- Statistical Issue
- Variance Reduction
- Process Capability
- Defect Prevention
- Stability, Predictability
- Design Excellence
- Standardization
- Risk Analysis

VA Function Analysis (3-6 days)
- FADT Diagram
- Cost
- Performance Attributes
- Standardization
- Risk Analysis
Task Order Intake

- Problem Statement
- Objective
- Scope

Consultation

Innovative Business Solutions
Task Order

Instructions: Please complete only this page (Page 1) and then schedule a one-hour consultation with Troy TUsup. Ttusup@dot.ca.gov or (916) 653-3538.

I. Project Overview
Tell us concisely about the current state of your process. Why is it a problem? What are the issues? What do you hope to achieve?
Provide short problem statement:

II. Scope of Project
Your scope should have a definite beginning and ending point. We will review your scope with you at the pre-meeting and help to "right-size" your project.

At this point, please save and send to Ttuusup@dot.ca.gov and schedule a one-hour consultation with Troy TUsup.
Ttusup@dot.ca.gov or (916) 653-3538
Lean Six Sigma vs Value Analysis

Lean Six Sigma (DMAIC)

- Define
- Measure
- Analyze
- Improve
- Control

Value Analysis

- Information
- Speculation
- Evaluation
- Development
- Presentation
- Audit
- Creativity
- Function Analysis
Appling Value Analysis

- Caltrans has performed over 40 VA studies under this program which has achieved outstanding results. Example VA Study efforts include:
  - Storm Water Management Program
  - California Bridges and Structures Strategic Direction
  - Division of Engineering Services Organization Effectiveness and Delegated Authority
  - Division of Engineering Services Unbalanced Bid Process
Storm water management program

VA STUDY OBJECTIVES

- Improve department-wide consistency and compliance with the Caltrans Storm water Permit, and statewide program implementation effectiveness.
- Define appropriate storm water management roles and responsibilities for program.
- Improve communication, decision making, related guidance, and conflict resolution.

OUTCOMES

- Created action plan with 11 recommendations for change, focusing on: clarifying authority; improving communication; improving succession planning; improving integration, structure, knowledge retention and changing perceptions; improving engagement and knowledge retention; and streamlining guidance.
California Bridges & Structures Strategic Direction

VA STUDY OBJECTIVES

- Draft a Strategic Direction to improve mobility in California by delivering and managing bridges and structures that are safe, durable and cost effective through leadership, innovation and efficient delivery.

OUTCOMES

- Identified and prioritized 12 strategic objectives that directly address existing Caltrans strategic goals.
- Identified 25 strategies to achieve the stated objectives.
- Developed performance-based metrics for tracking progress towards strategic objectives.
Division of Engineering Services (DES)  
Organization Effectiveness and Delegated Authority

VA STUDY OBJECTIVES

- Review current DES organizational structure
- Identify opportunities to improve structure effectiveness
- Develop recommendations that will improve the value of the organization

OUTCOMES

- Development of 11 initiatives that could improve the effectiveness of DES (in the categories of strategy, structure, processes, metrics/rewards, and people)
Division of Engineering Services (DES) Unbalanced Bid Analysis Process

VA STUDY OBJECTIVES
- Formalize a set of analytical tools to aid districts in bid analysis
- Develop a standardized award recommendation template
- Define best practices in bid package preparation and bid analysis
- Identify ways to increase construction involvement in bid analysis

OUTCOMES
- Developed new process of transitioning from pre-bid to post-bid
- Developed 6 alternatives that offer performance/value improvement and identify specific tools to improve the bid analysis process
- 4 alternatives immediately implemented by DES/OE and rolled out via memos and guidance to each Caltrans district
- Significant DES-OE training efforts to implement tools/guidance
Resources

- Green/Black Belt
  - Expectations
  - Catalog of Opportunities
- Presentations
  - Staff Meeting outreach
  - Webinars
- Training
  - Open University
- Help Files

Caltrans Green/Black Belts
- Organization Chart Distribution - June 2017
- Traits of a Green Belt Candidate
- Types of Opportunities for GB/BBs
- L6S Catalog of Opportunities -- Check here to see what projects are currently available
- Current GB/BB Projects

Methodologies
  - What is:
    - Lean
    - Lean 6 Sigma
    - Value Analysis

Forms
- Task Order

Training
- Online Lean 6-Sigma Training (Green and Black Belt)
  - Benefits of Six Sigma
  - Intro to L6S Training
  - Intro to L6S Green Belt Certification Training
  - Push Matrix for Concept Selection
  - Voice of the Customer (VOC)
  - What is a Multi Vari Chart?
  - Intro to Design of Experiments (DOE)
  - Intro to Exploratory Data Analysis
Caltrans Curriculum...

- Lean 6 Sigma
  - Green/Black Belt
  - 6-Month Program

- Lean Advanced Training
  - Caltrans Lean
  - 1-Day Unit Training
  - Statewide Pilots

- Lean Orientation Training
  - White Belt
  - 1-Day Training
Challenges...

1. Middle Management Support
2. Follow-Up and A3 Monitoring - Control Plan
3. GB/BB - Classifications and Borrowed Time
4. Pilot Projects vs Statewide Implementation
5. Continuous Improvement
Goal ~ Pursuit of Excellence....

In addition to training, outreach efforts continue in the form of awareness presentations at various in-house trainings and Division meetings.

In the end... EVERYONE THINKS
Contact Information

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► 916-653-3538
► TTusup@dot.ca.gov
https://sites.google.com/a/state.co.us/lean-interchange/

WELCOME TO THE LEAN INTERCHANGE NETWORK

Do you have resources and announcements to share? Please email Gary.Vansuch@state.co.us for permission.
What's on your mind?

- Share Your Successes!
- Additional Questions?
- Other Discussion Topics?

OPEN forum
NEXT forum

DECEMBER 2017

If interested, contact: meagan.brown@state.co.us
THANK you!