The Neuroscience of Continuous Improvement

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The Challenge

80%

of change initiatives don’t work.
Lean Thinking success is even lower.
The Human Brain
Agenda

• 5 Points (50,000 feet view to 1,000 feet)
• Demonstration (What the brain does)
• Exploration
• Solution
• Resources
• Q and A
Point # 1

Human interactions are wasteful, e.g. half of meetings are waste and add up to a yearly total in the U.S. of 37 billion dollars.
Point # 2

Process Improvement

People improvement for process improvement

People interaction improvement
Point # 3

Shigeo Shingo says:
The most dangerous kind of waste is the waste we do not recognize.
Point # 4

**Lean Public Service Model**

**Step 1**
Align with Strategy
- Integrate Lean with Agency Strategy

**Step 2**
Build Lean Culture
- Learn Lean Problem-solving and Continuous Improvement
- Learn how to manage the flow of knowledge work
- Create high-performing teams
- Develop high-performing leadership

**Step 3**
Build Lean Systems
- Map Value Streams
- Implement Value Stream Plans
- Lean+Strategy Integration (typically an annual cycle)
**Point # 5**

**Process and People**

<table>
<thead>
<tr>
<th>Classic 7 Wastes</th>
<th>New 7 Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation</td>
<td>Teamwork</td>
</tr>
<tr>
<td>Inventory</td>
<td>Leadership</td>
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<tr>
<td>Movement</td>
<td>Communication</td>
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<tr>
<td>Waiting</td>
<td>Problem-solving</td>
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<tr>
<td>Over-production</td>
<td>Engagement</td>
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<tr>
<td>Over-processing</td>
<td>Reward</td>
</tr>
<tr>
<td>Defects</td>
<td>Knowledge</td>
</tr>
<tr>
<td><em>(Human Potential)</em></td>
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The Human Brain
A Nice Brain Problem

• Awarded a grant
• A week of team-building training/4 hrs. a day.
• Budget is $15,000 each
• Can go anywhere in the world!

Any Ideas?
Within 2 Seconds!

- Hawaii
- France
- A cruise
- South America
- Canada

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System 1 Thinking

First choice of the brain:

• Quick
• Intuitive
• Little or no effort
• No sense of voluntary control
System 2 Thinking

More difficult:

- Requires focused attention
- Responds when system 1 cannot work
- Source of identity and self-awareness
- Effort leads to selfishness, fatigue, urge to quit
Neuroscience Basics

The human brain has evolved over millions of years for two purposes:

- Staying alive
- Getting genes into the gene pool

*Speed, not LOGIC is the action.*
Neuroscience Basics

To increase speed the brain:

• Processes most information unconsciously
• Applies simplifying templates
• Accepts good enough results
Normal Group Problem-Solving

Debate system 1 solutions

Decisions by:

• authority
• persuasion
• wearing down the opposition
• voting
The Neuroscience of Continuous Improvement

Successful Continuous Improvement requires:

1. Team environment
2. Clear goals
3. Engaged employees
Problem-Solving

1. Identify and Select Problem
2. Analyze the Problem
3. Generate Potential Solutions
4. Select and Plan Solutions
5. Implement Solutions
6. Evaluate Solutions

Standardize
# Problem-Solving

## Six Sigma Problem Solving - MAIC

<table>
<thead>
<tr>
<th>Measure</th>
<th>Analyze</th>
<th>Improve</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Describe the Problem</td>
<td>(4) Identify Potential Causes</td>
<td>(9) Determine Best Solution</td>
<td>(12) Implement Solution</td>
</tr>
<tr>
<td></td>
<td>(5) Analyze Existing Data</td>
<td>(10) Pilot Solution</td>
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<tr>
<td></td>
<td>(6) Construct List of Verified Facts</td>
<td>(11) Verify Solution Works</td>
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</tr>
<tr>
<td></td>
<td>(7) Compare Causes to Facts</td>
<td></td>
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</tbody>
</table>

### Measure

1. Describe the Problem
2. Measure Magnitude of Problem
3. Determine When Problem Started

### Analyze

4. Identify Potential Causes
5. Analyze Existing Data
6. Construct List of Verified Facts
7. Compare Causes to Facts
8. Collect Additional Data Until Root Cause Identified

### Improve

9. Determine Best Solution

### Control

10. Pilot Solution
11. Verify Solution Works

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**FACTS**

- All Machines
- Second Shift
- Certain Codes
- Started 8/22
- Steadily Worse
- All Operators

<table>
<thead>
<tr>
<th>Cause</th>
<th>Fact 1</th>
<th>Fact 2</th>
<th>Fact 3</th>
<th>Fact 4</th>
<th>Fact 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cause 1</td>
<td>O</td>
<td>X</td>
<td>X</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Cause 2</td>
<td>X</td>
<td>O</td>
<td>A</td>
<td>O</td>
<td>A</td>
</tr>
<tr>
<td>Cause 3</td>
<td>O</td>
<td>O</td>
<td>A</td>
<td>A</td>
<td>O</td>
</tr>
<tr>
<td>Cause 4</td>
<td>X</td>
<td>A</td>
<td>X</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>Cause 5</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>X</td>
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</tbody>
</table>
The Approach

Enable unique individuals to problem solve together rather than engage in a power struggle or a series of debates
The Answer!

- Slow down thinking
- Eliminate debate style problem-solving
- Enable parallel thinking
- Provide an external structure
- Assemble solutions
The Oil Drum Story
5. Slam on the brakes
What would you do if a piece of Kleenex fell off the truck instead of an oil drum?

Nothing—you’d cruise on by.

So...
1. Identify the issue (problem/opportunity)
   There is an oil drum in your lane

2. Define the goal (in measurable terms)
   Avoid an accident

3. List hurdles to reaching the goal
   Nearby cars, time to impact is 1.2 seconds

4. List possible solutions
   Brake, swerve, pray, panic

5. Choose the best solution
   Slam on the brakes

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Harnessing the Speed of Thought®

To use this model in a team:

– All must agree that each step is completed before moving to the next.

– In most cases: Apply the 4-3-2-1 Rule
You each have been given $15,000 to spend on a week’s team building together. The only stipulation is that you must daily spend at least four waking hours with one another.
1. Issue  Spend a week together using a gift of $15,000 each

2. Goal   Enjoy ourselves, learn teamwork, warm climate, relaxed days, party nights, etc.

3. Hurdles  Spend four hours together, one week, only $15,000, away from family/friends, etc.

4. Solutions  Hawaii, France, UK, Australia, etc.

5. Choose  Maui in Hawaii
Harnessing the Speed of Thought®

This model will harness the collective wisdom of high-performing teams
Harnessing the Speed of Thought®

1. Identify the issue (problem or opportunity)
2. Define the goal (in measurable terms)
3. List the hurdles
4. List possible solutions
5. Choose the best solution
Conclusion 1

- The problem is in the brain.
- Pull the problem outside of the brain.
- Structure the problem for group mutual decision making.
Conclusion 2

• Process improvement ≤ Developing people
• Must make invisible visible
• Do the same for all seven people assets
Process and People

Lean Thinking

Classic 7 Wastes
Transportation
Inventory
Movement
Waiting
Over-production
Over-processing
Defects

New 7 Assets
Teamwork
Leadership
Communication
Problem-solving
Engagement
Reward
Knowledge
Washington State

Early Adopter

DSHS

Streamlining and Authentic Leadership
Resources

What is Thought
Eric Baum

Thinking, Fast and Slow
Daniel Kahneman

Why Lean Programs Fail
Jeffery Liker and Mike Rother
Lean Enterprise Inst.
Resources

Rapid Office Kaizen  Carlos Venegas

Personal Kanban  Jim Benson and Tonianne DeMaria Barry

The Neglected Half of Lean Thinking, Robert Brown
Quality Digest, March, 2013
Resources

Transparent Management
Unleash the Collective Wisdom of Your People

Introducing
Harnessing the Speed of Thought

Robert Brown
Author of Earn Their Loyalty

Earn Their Loyalty
Treating Customers and Employees Like People

Robert Brown PhD

From Supervisor to CEO
Do It Right, First Time, Every Time

Mistake-Proofing Leadership

Rudy F. Williams, Ph.D.
Robert A. Brown, Ph.D.

THE PEOPLE SIDE OF LEAN THINKING
A Practical Guide to Change, Employee Engagement and Continuous Improvement

Robert Brown
Author of Transparent Management

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Thoughts?

Questions?

Concerns?
Thank You

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