Project Management the Lean Six Sigma Way

- Better
- Faster
- Cheaper

Paul J. Fields, PhD
Sounds Too Familiar?

Let's go around the table and give an update on each of our projects.

My project is a pathetic series of poorly planned, near-random acts. My life is a tragedy of emotional desperation.

It's more or less customary to say things are going fine.

I think I need a hug.
Powerful Tool Kit

- Six Sigma Tools
- Lean Tools
- Project Management Tools

Right Scope
Right Time
Right Cost
### Project Quality Management

<table>
<thead>
<tr>
<th>Initiating</th>
<th>Planning</th>
<th>Executing</th>
<th>Monitoring &amp; Controlling</th>
<th>Closing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiate</td>
<td>Plan</td>
<td>Execute</td>
<td>Control</td>
<td>Close</td>
</tr>
</tbody>
</table>

#### IPECC

- Initiate
- Plan
- Execute
- Control
- Close

#### PDCA

- Plan
- Do
- Check
- Act

#### Cost of Quality

- Prevention
- Inspection
- Fix/Scrap
- Validate Conformance
- Rework/Failure

#### Quality Assurance

- Conformance Work
- Non-Conformance Work

#### Essential First-Time Work

- Preventable
- Not Preventable

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Project Management: IPECC

Think Strategically
What is the Desired Result?

Plan Tactically
What Must be Done?

Act Operationally
How to Do It?
Six Sigma: PDCA

Plan
Do
Check
Act
IPECC and PDCA
PDCA

- Constantly Rotating
- Always Checking that Project Will Meet Customer’s Expectations
- “Builds in” Quality
Plan: Plan How to Complete One Part of the Work

Do: Complete that Part of the Work

Check: Check that Completed Work Satisfies Customer’s Expectations

Act: Decide Actions to Correct Any Problems or Move to the Next Part of the Work
Six Sigma: Reduce Variation

Quality is Zero Variation from Customer’s Expectation
Six Sigma Tools

1. Cause & Effect Diagram
2. Checksheets
   - Category
   - Strokes
   - Frequency
3. Pareto Diagrams
4. Flowcharts
5. Histograms
6. Scatter Diagrams
7. Control Charts
Four Simple Yet Powerful Tools

1. **Flowchart** (Time Sequence)
2. **Check Sheets** (Tally)
3. **Pareto Chart** (80-20 Rule)
4. **Cause-and-Effect Diagram** (Fishbone)
Flowchart “Swim Lane”

1. Customer
   - Customer submits PO

2. Sales
   - Rep Logs PO, Enters Order

3. Contracts
   - Contracts Agent Reviews Order
     - No, Standard Terms?
       - Yes, Agent Approves Order
       - No, Agent Requests Approval
         - No, Agent Cancels Order
           - Rep Is Notified
         - Yes, Changes Acceptable?
           - Yes, Attorney Marks it OK, Returns to Agent
           - No, Attorney Marks it No, Returns to Agent

4. Legal
   - Order Is Not Shipped

5. Fulfillment
   - Order Is Shipped
# Checksheet

## Project: Admissions Process Redesign

<table>
<thead>
<tr>
<th>Location: ABC Hospital</th>
<th>Date:  mm/dd/yyyy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: Andy Kollengode</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>People in Line</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6:45</td>
</tr>
<tr>
<td></td>
<td>7:00</td>
</tr>
<tr>
<td></td>
<td>7:15</td>
</tr>
<tr>
<td></td>
<td>7:30</td>
</tr>
<tr>
<td></td>
<td>7:45</td>
</tr>
<tr>
<td></td>
<td>8:00</td>
</tr>
<tr>
<td></td>
<td>8:15</td>
</tr>
<tr>
<td></td>
<td>8:30</td>
</tr>
</tbody>
</table>

- 25
- 20
- 15
- 10
- 5
- 0

Total:
- 0
- 7
- 23
- 29
- 20
- 22
- 6
- 5
Pareto Principle

- Vilfred Pareto – Italian Economist 1848-1923

- 80-20 Rule: 80% of Problems from 20% of the Causes

- “Significant Few, Insignificant Many”

- Go for “Low Hanging Fruit, Save the Rest for Later”
Pareto Chart

- Edge Flaw
- Print Quality
- Cosmetic
- Print Detail
- Assembly
Time to Think and Discuss…

➢ Think of Three Applications

➢ Then Share and Discuss …
Six Sigma Tools

- Affinity Diagram
- PDPC
- Interrelationship Digraph
- Tree Diagrams
- Prioritization Matrices
- Network Diagrams
- Matrix Diagrams
Let’s Try a Few …

- Project = Preparing for a Party
  1. Nominal Group Technique
  2. Affinity
  3. Interrelationship Digraph

*Stickie Notes:*

*Greatest Invention Ever !!!*
Let’s Try a Few …

1. Nominal Group Technique
   ✷ Brainstorm and Vote

2. Affinity Diagram
   ✷ Arrange into “Families”

3. Interrelationship Digraph
   ✷ Identify Connections
Lean → Speed

Be Lean to Run Fast

So, Reduce Waste !!!
Lean: 7 Wastes

- Over-Production
- Inventory
- Over-Processing
- Motion
- Waiting
- Defects
- Transportation

The Seven Wastes
Lean Tools: 5 S’s

- **SORT**: Identify needed items
- **SET IN ORDER**: Create a place for everything
- **SUSTAIN**: Put standards in place and monitor
- **STANDARDIZE**: Keep items and the work area clean
- **SHINE**: Maintain a clean and organized work environment
Lean Tools: Actually Six

- Shitsuke (Sustain)
- Sort (Seiri)
- Standardize (Seiketsu)
- Straighten (Seiton)
- Shine (Seiso)
- Safety
IPECC and 5S's

Initiating
Planning
Executing
Controlling
Closing

Shitsuke
Sustain

Standardize
Seiketsu

Safety

Sort
Seiri

Shine
Seiso

Straighten
Seiton
Recommendation

- Do Not Try This at Home …
- Magic Will Happen !!!

✓ Increase Quality (Scope) by 30%
✓ Reduce Processing Time by 50%
Project Quality Management

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## Cost of Quality

<table>
<thead>
<tr>
<th>Cost of Conformance</th>
<th>Cost of Nonconformance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prevention Costs</strong></td>
<td><strong>Internal Failure Costs</strong></td>
</tr>
<tr>
<td>(Build a quality product)</td>
<td>(Failures found by the project)</td>
</tr>
<tr>
<td>• Training</td>
<td>• Rework</td>
</tr>
<tr>
<td>• Document processes</td>
<td>• Scrap</td>
</tr>
<tr>
<td>• Equipment</td>
<td></td>
</tr>
<tr>
<td>• Time to do it right</td>
<td></td>
</tr>
<tr>
<td><strong>Appraisal Costs</strong></td>
<td><strong>External Failure Costs</strong></td>
</tr>
<tr>
<td>(Assess the quality)</td>
<td>(Failures found by the customer)</td>
</tr>
<tr>
<td>• Testing</td>
<td>• Liabilities</td>
</tr>
<tr>
<td>• Destructive testing loss</td>
<td>• Warranty work</td>
</tr>
<tr>
<td>• Inspections</td>
<td>• Lost business</td>
</tr>
</tbody>
</table>

Money spent during the project **to avoid failures**

Money spent during and after the project **because of failures**

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Quality and Grade

The Project Manager and the Project Team are Responsible for Managing the Decisions Associated with Delivering the Required Levels of Both Quality and Grade.
Cost of Quality

How Much Does Quality Cost?
Some Examples ....
More than Accounting Costs !!!
Six Sigma Results:
Meet Requirements → Exactly
Listen Voice of Customer
No Defects, No Rework
Lower Costs
Increased Value
Lean Results:

Greater Capacity → Responsive
Driven by Demand
Faster Work Flow
Lower Costs
Increased Value
Project Management the Lean Six Sigma Way

Initiating → Planning → Executing → Controlling → Closing

Plan → Do → Check → Act

Shitsuke Sustain
Standardize Seiketsu
Safety
Sort Seiri
Shine Seiso
Straighten Seiton
What Everybody Wants …

✓ Six Sigma ➔ Better
✓ Lean ➔ Faster
✓ Together ➔ Cheaper
The Winning Combination

Six Sigma Tools
Lean Tools
Project Management Tools

Right Scope
Right Time
Right Cost