Storyboard Lean Six Sigma – Kaizen

The Purchase Order Processing Success Story

White Belts:
Team listing
4 Members of
Purchasing
Department

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Lean Six Sigma - Project Selection For Kaizen

Problem/Defect:
Excessive Processing Time for Purchase Orders (40,000)
Many Different methods for orders
Large # of suppliers
Missed discounts

Objectives:
Reduce Processing Time
To a **10 day target** or better
End Bureaucratic chaos
Reduce missed discounts
Rationalize suppliers

? ? ?

Why This Project?

? ? ?

Reasons

1. **Seven different ways to procure goods.**
2. **Excessive manual handling of transactions**
3. **Over $1,000,000 in missed supplier discounts. 3 way match.**
4. **Over 5000 suppliers .**
5. **Cited by auditors on controls and filing**
6. **Purchasing downsized from 8 persons to 4.**
7. **Processing cycle time all over the map**

LSS Tools: Four Block Charter, White Belt Team Training, Assignment of Green Belt, Assignment of Champion, Kaizen date

Project Selection → Define → Measure → Analyze → Improve → Control

Lean Six Sigma - **Define** Phase Tools

The Requirement Is Established

- Problem Defined
- Key Metrics (Dollars lost)
- Basic Objective Statement
- LSS Kaizen Team Members Selected and training set up to become White Belts

The Kaizen Team Is Assembled

Purchasing LSS Kaizen Team July 20-21

The Kaizen tools used

SIPOC: What does the process look like?
What's going in?
What's coming out?

Voice of the Customer: What are the customers and stakeholders saying**?**

AS IS Process Process map: What is the process and steps?

Project Scope: What the project is not and what it will cover in Purchasing.

LSS Tools: Project Charter, Kaizen Plan, SIPOC, VOC, Project Scope, AS IS process map

Project Selection → Define → Measure → Analyze → Improve → Control

Lean Six Sigma - Measure Phase Tools

What Data Do You Need? → **What's Important to the Customer?** → **What is the Baseline Performance?** → **What Does The Process Look Like?**

Key Messages!
Voice of the Customer

1. Untimely process
2. Lack of controls
3. Missed discounts
4. Too many processes
5. Not getting what I want on time
6. Confusion and frustration

the Customer Analysis Needed.

AS IS Process Flow
Diagramed 7 ways to complete a purchase order

LSS: Purchasing Data Collection Plan, Baseline Performance, VOC Analysis, CTQ Analysis, AS IS Process Mapping,

Project Selection → Define → Measure → Analyze → Improve → Control

Lean Six Sigma - **Analyze** Phase Tools

How is The Process Performing? → **Where & When Does the Process Fail?** → **Why Do the Process Failures Occur?** → **What Are the some causes of the Process Failures?**

20 days cycle average, 5000 suppliers ,many missed discounts

- Lack of clear requirements
- Highly manual process prone to error
- Multiple crises orders
- Constant expediting
- No time to match orders to invoices
- Too much choice in suppliers
- Supplier performance not tracked
- Unwieldy audit requirements

1. Why?
2. Why?
3. Why?
4. Why?
5. Why?

5-Why Analysis to get to Fundamental Causes

- **Delays in getting requirements**
- **Lead times**
- **Process errors**
- **High manual process**
- **Multiple suppliers- performance not tracked**
- **Too many ways to order goods and services**

Fundamental Cause- perhaps high manual workload that leads to errors

LSS Tools: Process Analysis, FMEA, Basic Cause Analysis, 5-Why Analysis

Project Selection → Define → Measure → Analyze → Improve → Control

Lean Six Sigma - **Analyze** Phase

What is the Root of the Major Failures? → **What is the Current Baseline Performance?** → **What are the Hypotheses for Causes of Process Failures?** → **Next Phase is To Perform Statistical Analysis to Test Each Hypothesis!**

Small orders

80% of the orders Are under $1000. 72% Are under $500. Small orders are causing the most errors.

Small order performance All over the map with Very large standard deviation.

1. **Sheer volume**
2. **Many suppliers**
3. **Many Order methods**
4. **Supplier performance not confronted**
5. **Communications and follow-up nearly impossible**

Delays

- **Forms understanding of causes**
- **Helps to develop solutions**
- **Validates Results**
- **Establishes Reality!**

LSS Tools: Process Analysis, FMEA, Graphical Analysis, Cause Analysis, 5-Why Analysis, Statistical Analysis

Project Selection → Define → Measure → Analyze → Improve → Control

Lean Six Sigma - **Improve** Phase Tools

What is the Best Solution? In the Future. → **Execute a Data Collection Plan and a Communication Plan** → **Proceed With Plan** → **Monitor the Results and Adjust**

Data Collection

Future
Possible
Solution 1
Solution 2
Solution 3

Data Plan

Communication Plan Internal And external

Data Plan: Initial data on delays

- **Test Hypotheses**
- **Validate delay reasons**
- **Improve case status visibility**

LSS Tools: Data collection Plan, Pilot Plan, Communication Plan, FMEA

Project Selection | Define | Measure | Analyze | Improve | Control

Lean Six Sigma - **Improve** Phase Tools

New Process TO BE Improvements List

- **Analyze small purchase orders-concentrate on simplifying purchases under $1000**
- **Radically Reduce the number of suppliers**
- **Establish a few key preferred suppliers and track their performance**
- **Consider and implement purchase card usage**
- **Consider e-procurement methods**
- **Reduce the number of methods to purchase good (currently 7 methods)**
- **Empower more requisitioners to use the short order form (purchasing not involved)**
- **Review supplier list and eliminate "onesie twosie" type suppliers and inactive ones**
- **Develop a small order purchase manual for power requisitioners**
- **Consider outsourcing type agreements for the storerooms**
- **Update all purchase order manuals**
- **Raise short order limit to $2500 versus $1000 for selected power users**

LSS Tools: TO BE process

Lean Six Sigma - Control Phase Tools

Initiate the Roll-Out Plan → **Initiate Long PO Metrics** → **Post Project Review & Lessons Learned**

Track Long PO system

- Provides visual status of the process
- Provides focus for management
- Maintains visibility of critical areas
- Establish trigger points for action
- 160 per week average large POs
- Larger dollar orders

- What Was Done Right?
- What Was Done Wrong?
- What Could Have Gone Better?
- How Can We Improve?

Lean Six Sigma Tools: EEO Process Metrics, Lessons Learned, Documented Procedures, Monitor Plan

Project Selection → Define → Measure → Analyze → Improve → Control

Lean Six Sigma - Control Phase Tools

Provide Visibility PO Process Control → **Fully Document Procedures And Metrics** → **Transition to Continuous Case Improvement** → **Monitor & Response Plans**

Established Control Methodology and Action Plan

DID THE NEW PROCESS IMPROVE CYCLE TIME?
Especially Long POs
Purchasing professionals can spend more quality time on them!

ON TO THE NEXT PROJECT!

Lean Six Sigma Tools: Process Metrics, Lessons Learned, Control Charts, Documented Procedures, Monitor Plan

Project Selection → Define → Measure → Analyze → Improve → Control

Results

Actual TO BE Improvements List

- Cycle time for small purchase orders now averaged 3 days or less
- Suppliers reduced from over 5000 to 256
- About 30 key preferred suppliers established
- Purchase card implemented and now capture about 80% of purchase orders under $1000
- E-procurement module added to ERP system
- Reduced the number of methods to purchase goods from 7 to 3
- Empowered 20 more requisitioners to use the short order purchasing form (purchasing not involved)
- Developed a small order online purchase manual for power requisitioners
- Outsourced some storeroom functions to preferred supplier distributers
- Updated all purchase order manuals
- Raised short order limit to $2500 versus $1000 for some selected screened power users

LSS Tools: TO BE process

Dr. Tom Information

Short Bio

Dr. Tom DePaoli is the Management Program Director at Marian University in Fond du Lac, Wisconsin, and the Principal (CEO) of Apollo Solutions (www.apollosolutions.us) which does general business consulting in the supply chain, Lean Six Sigma and human resources areas. Recently he retired from the Navy Reserve after over 30 years of service. In other civilian careers, he was a supply chain and human resources executive with corporate purchasing turnaround experience and Lean Six Sigma deployments. He is the author of: Kaizen Kreativity (Oops!), Common Sense Purchasing, Common Sense Supply Management and Growing up Italian in the 50s. His Amazon author's page is https://www.amazon.com/author/tomdepaoli

LSS Tools: TO BE process