

**Are Delays, Defects and Deviation  
Eating Your Profits?**

# **Lean Six Sigma Million Dollar Money Belt™ Action Plan**



**Plug the Leaks in Your Cash Flow!**

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# Lean Six Sigma

## Targets

	Defects/Million
1	690,000
2	308,733
3	66,803
4	6,210
5	233
6	3.4

## What Is the Lean Six Sigma Mindset?

Lean Six Sigma is a results-oriented, project-focused approach to quality. It's a way of measuring and setting targets for reductions in product or service defects that is directly connected to customer requirements. These reductions in the cost of poor quality translate into cost savings and competitive advantage.

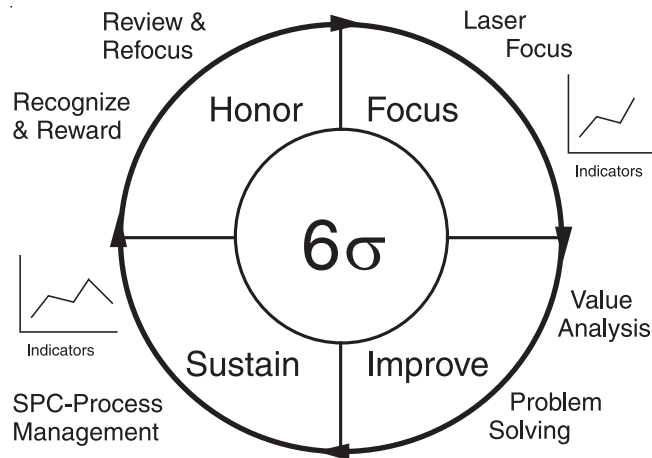
In *Built To Last*, (Collins 1997), the authors mention the need for a BHAG or Big Hairy Audacious Goal. Using Lean Six Sigma as a guide, you can measure your current performance in defects per million and set a BHAG of reaching the next level sigma. Set a goal to reach level 5, estimating 18-24 months per step.

## The Improvement Journey

*In the long run, the only sustainable source of competitive advantage is your organization's ability to learn faster than its competition.*

Peter Senge

When you start to improve your speed and quality, you become a detective like Sherlock Holmes. You let the evidence (your data) lead you step-by-step to the true culprit—the root cause. When you do, you'll stop using trial and error, or gut feel to fix things. You start using some common science. Lean Six Sigma offers a proven, systematic method to continuously improve every aspect of your business. Lean Six Sigma begins with **focusing** effort for maximum benefit, then **improving** the processes, **sustaining** the improvement and **honoring** your progress.



## Lean Six Sigma Demystified

FISH	Step	Activity
<b>Focus</b>	1	Focus the improvement effort
<b>Improve</b>	2	Reduce delay, defects, and deviation
<b>Sustain</b>	3	Stabilize and sustain the improvement
<b>Honor</b>	4	Recognize, review and refocus efforts

# The Power Laws of Speed Lean

## Eliminate Delay!

*If you can't quickly take throughput times down by half in product development, 75 percent in order processing, and 90 percent in physical production, you are doing something wrong.*

James P. Womack  
and Daniel T. Jones  
Authors of Lean  
Thinking

When you shorten lead times and focus on keeping production lines easily changeable, you actually get higher quality, faster response times, better productivity and better use of equipment and space.

At the end of 2003, Toyota's annual profit, at \$8.3 Billion, was larger than GM, Chrysler, and Ford combined.

Typical results from implementing Lean thinking:

- 90% reduction in lead times
- 90% reduction in all inventories
- 100% increase in productivity
- 50% reduction in errors
- Fewer injuries

## The 3-57 Rule

Employees are only working on the product or service for 3 minutes out of every 60. The product or service lounges around for the other 57 minutes.

***Make your product faster, not your people.***

## The 15-2-20 Rule

Every 15 minute per hour reduction in elapsed time will ***double productivity and reduce unnecessary costs by 20 percent.***

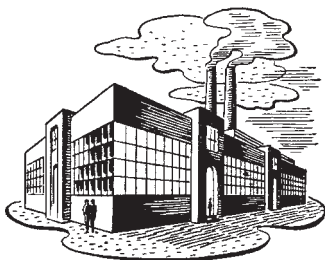
## The 3X2 Rule

Lean companies ***grow three times faster than average and double their profit margins.***

**Customers will pay a premium for speed.**

**Inshoring** Oddly enough, when you go Lean, you no longer need to offshore work which, by design, requires large inventories be shipped for weeks over oceans and then transported from ports on the coast.

**Economic Bounce** About half of any economic downswing is caused by companies and customers working off finished inventories that were built up earlier by mass production. In a Lean economy, there are no inventories.



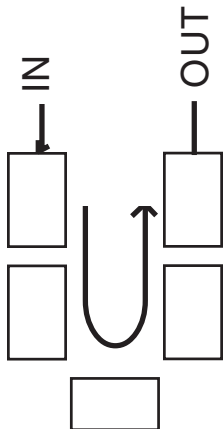
# Redesign for Speed

## Case Study

Hospital labs reduced unnecessary movement of people and samples by 57% in a 2,400 sq. ft. lab and freed up 400 sq. ft. for other purposes.

Labs used STAT centrifuges instead of slower bucket centrifuges saving 7 minutes per test.

This reduced turn-around times by a third and reduced errors and rework.



The trick is eliminating all of the delay between value-adding steps and lining up all of the machines and processes so that the product or service flows through the value channel without interruption. The mental shift required to move from mass production to speed production is to focus on continuous flow of small lots.

## The Redesign Process

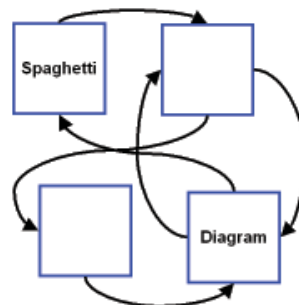
**1. Focus** on the part, product or service itself. Follow the product through its entire production cycle.

In a hospital you would follow a patient through from admission to discharge. In a printing company, you'd follow a job from start to delivery. In a manufacturing plant, follow the product from order to delivery.

**2. Eliminate the delay** *between* steps using value stream mapping:



**3. Evaluate and realign the work flow into production "cells"** to eliminate unnecessary movement using spaghetti diagramming:



**4. "Right size" the machines** and technology to support smaller lots, quick changeover, and one-piece flow.

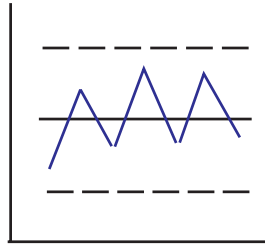
**The goal of flow** is to eliminate all delays, interruptions and stoppages, and not to rest until you succeed.

## Common measures of flow:

- Lead (or cycle) time: how long product stays in the system
- Travel distance of the product or people doing the work

# Develop Compelling Improvement Stories!

## 1. Count Your Defects, Errors or Mistakes

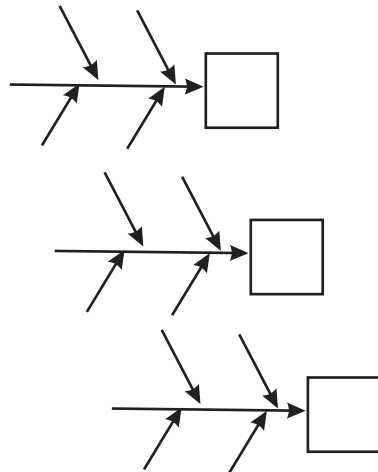
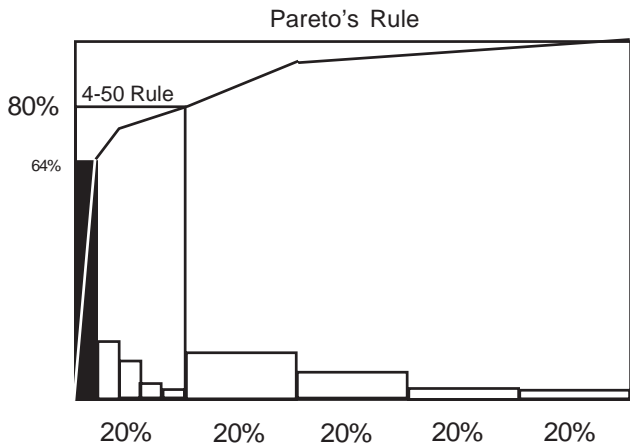


Control Chart

### 4-50 Rule

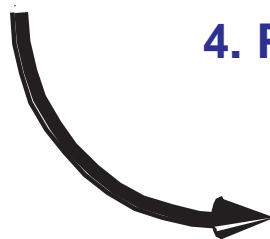
Less than 4% of any business creates over 50% of the waste, rework, and lost profit. Like a crime scene investigator reviewing forensic evidence, you can use data you already have to find and fix these root causes, and save a ton of money.

## 2. Categorize by Type



## 3. Analyze Parts of the Problem Simultaneously

## 4. Prevent The Problem



COUNTERMEASURE				

# Six Sigma

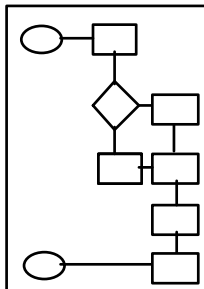
## Step 1 - Define The Problem

### Purpose

Define a specific problem area and set a target for improvement

*Problems are only opportunities in work clothes.*  
-Henry J. Kaiser

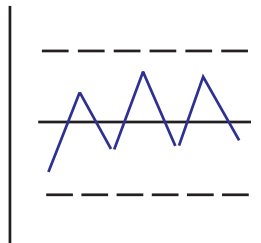
There are two ways of looking at problems:  
Increase (you want more of a "good" thing)  
Decrease (you want less of a "bad" thing)



These are often two sides of the same coin:

an increase in ...	is equal to a decrease in . . .
quality	number or percent defective
speed	cycle time—to deliver a product or service idle time—people, materials, machines
profitability	cost of waste and rework

### Measurement

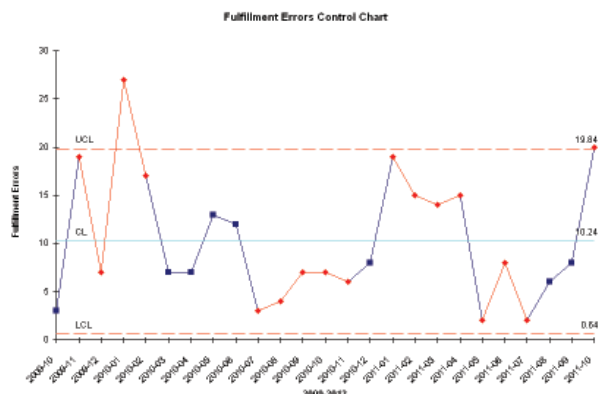


Solving problems is usually easiest when you focus on decreasing the "bad" rather than increasing the "good," because most good things are *effects* of fixing the bad. Most problems can be easily expressed as a *control chart* showing the current trend and desired reduction in either cycle time, defects, or cost. Begin by graphing the current problem:

### Example:

Reduce  
Fulfillment  
Errors

Target: 5 or less

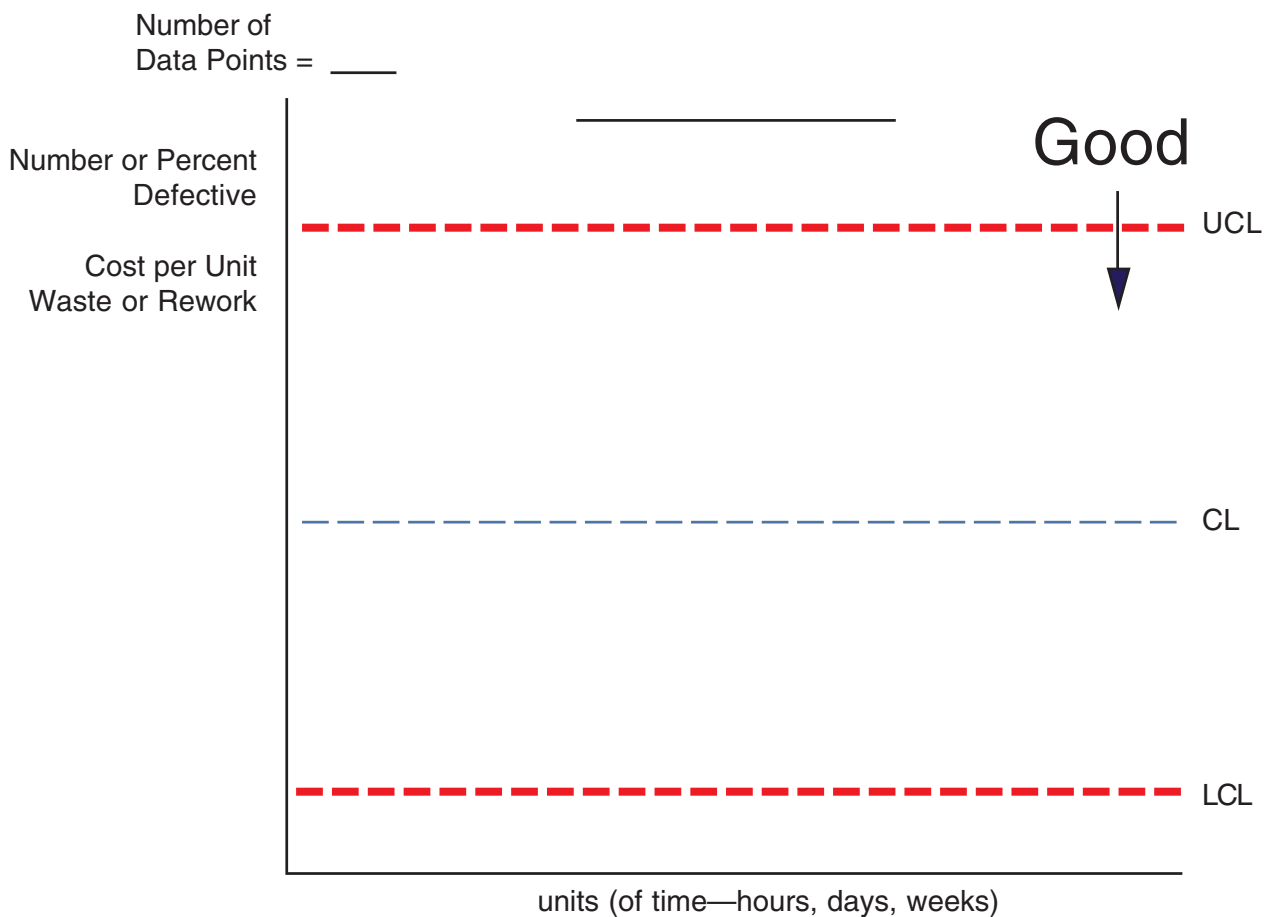


# Six Sigma

## Step 1 - Define The Problem

(circle one)

Problem: Reduce Defects, Deviation or  
 Cost to deliver \_\_\_\_\_  
 product or service



### QI Macros: Control Charts

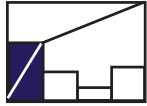
To automate all of your graphs, charts, and diagrams  
 get the *QI Macros SPC Software for Excel*

[www.qimacros.com](http://www.qimacros.com)

# Six Sigma

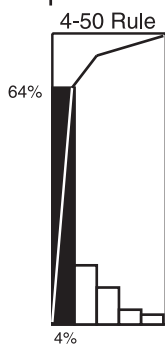
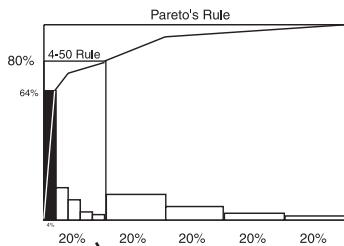
## Step 1 - Define The Problem

### Pareto Chart



We only admit to minor faults to persuade ourselves that we have no major ones.

- La Rochefoucauld



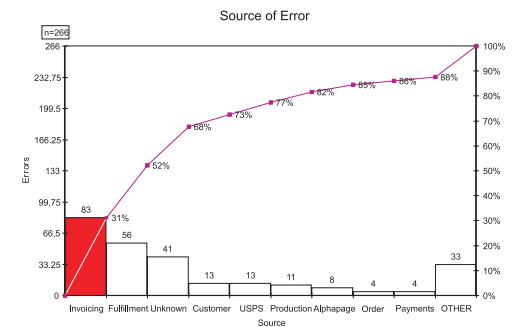
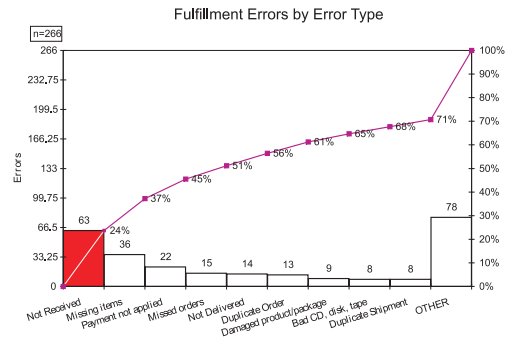
*A problem well stated is a problem half solved.*

Problem *areas* are usually too big and complex to be solved with one project, but when we whittle it down into small enough pieces, we can fix each one easily and effectively.

This step uses the Pareto chart (a bar chart and a cumulative line graph) to identify the most important problem to improve first.

Often, two or more pareto charts are needed to get to a problem specific enough to analyze easily. The left axis shows the number of occurrences for each bar. The right axis shows the cumulative percentage for the line graph.

Begin by identifying the components of the problem:



#### Indicator

- Defects
- Time
- Cost

#### Pareto Components

- types of defects
- steps or delays in a process
- types of costs--rework, waste

Once we have whittled the problem down to a small enough piece, we can then write a problem statement about the major contributor. This will serve as the basis for identifying root causes. We also need to set a target for improvement.

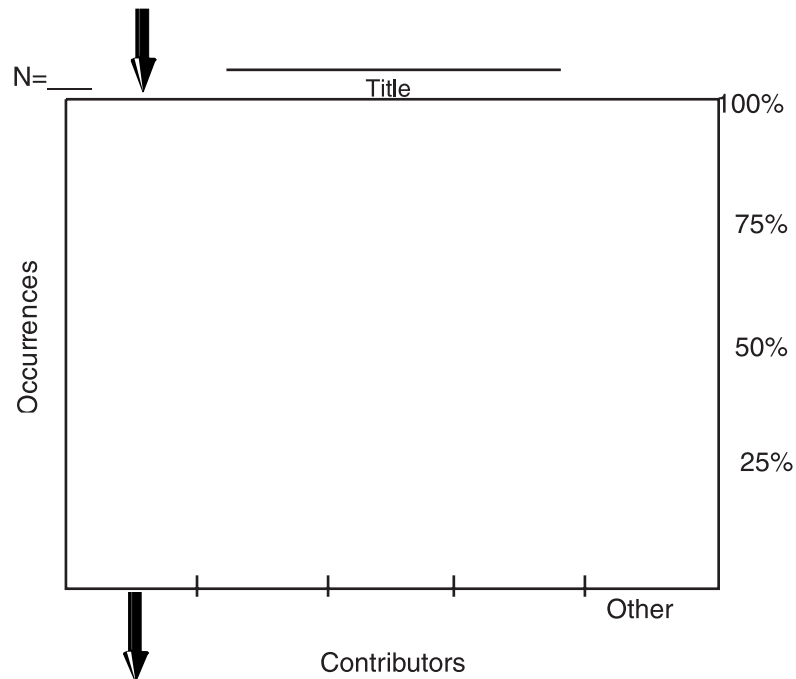
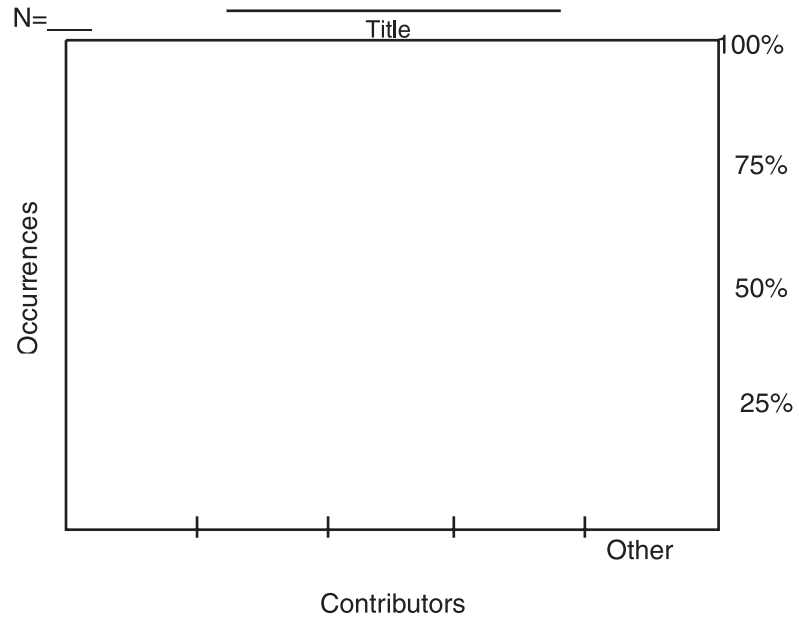
### Problem Statement

**Problem Statement:** During the 2009-2011, invoicing accounted for 31% of all shipments not received, which was 2X higher than desired and resulted in 83 resent packages.

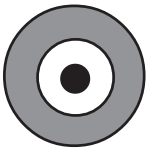
**Target:** 50% reduction in shipments not received.

# Six Sigma

## Step 1 - Define The Problem



Target = \_\_\_\_\_



### Problem Statement

During \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ accounted for \_\_\_\_% of \_\_\_\_\_,  
(Months) (Year) (Big Bar) (time, defects, cost)

which was \_\_\_\_\_ Higher than desired and resulted in \_\_\_\_\_.  
(Gap) (Pain)

# Six Sigma

## Step 2 - Analyze the Problem

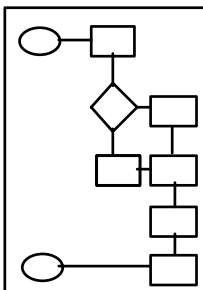
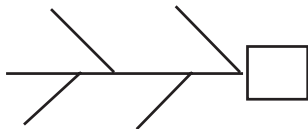
### Purpose

For every thousand hacking at the leaves of evil, there is one striking at the root.  
-Thoreau

Identify and verify the root causes of the problem

Like weeds, all problems have various root causes. Remove the roots and, like magic, the weeds disappear.

### Cause-Effect Analysis



1. To identify root causes, use the fishbone or Ishikawa diagram. Put the problem statement from step 1 in the head of the fish and the major causes at the end of the major bones. Major causes include:

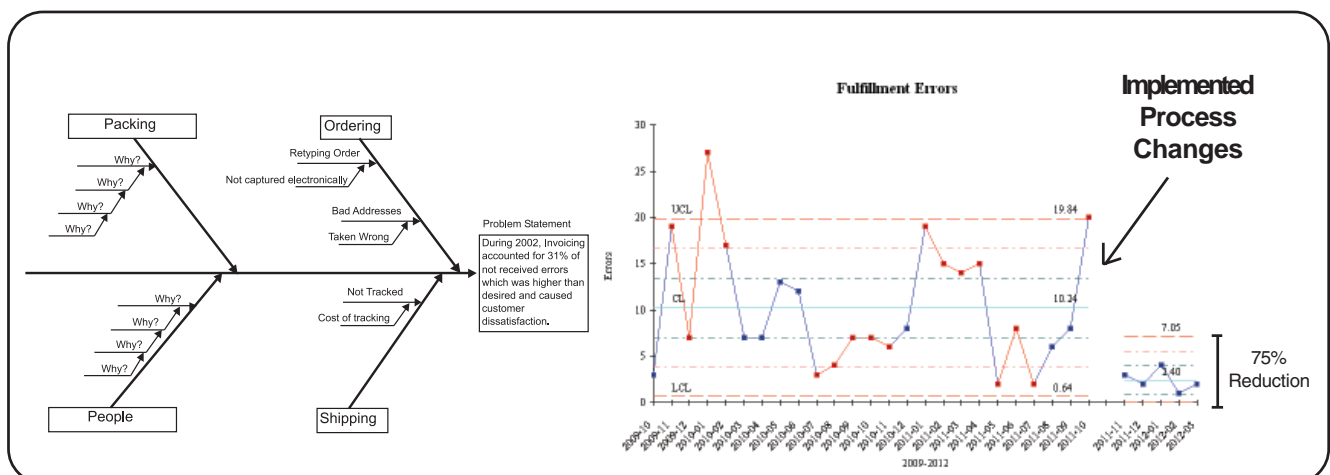
- Processes, machines, materials, measurement, people, environment
- Steps of a process (step1, step 2, etc.)
- Whatever makes sense

2. Begin with the most likely main cause.

3. For each cause, ask "Why?" up to five times.

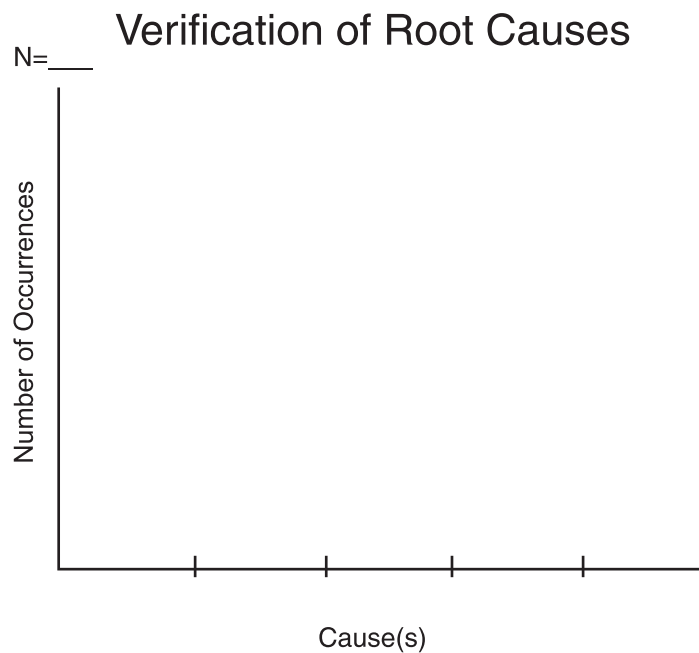
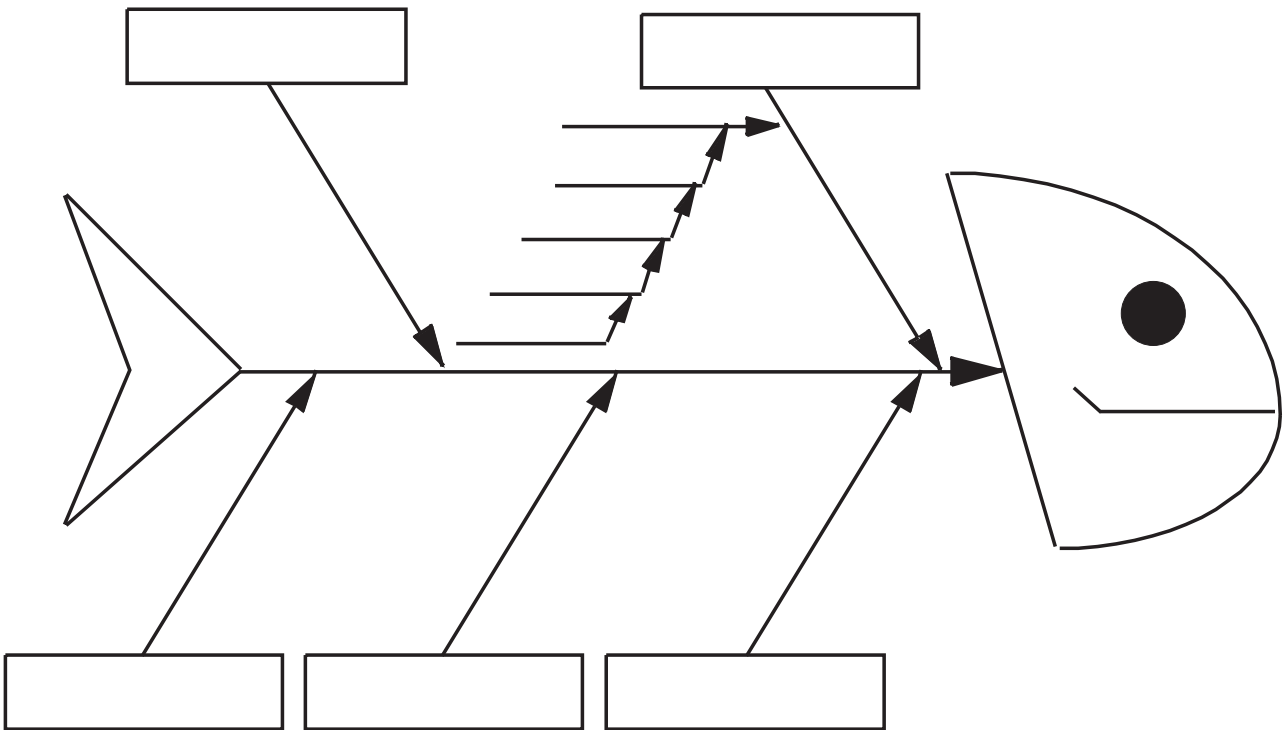
4. Circle one-to-five root causes (end of "why" chain)

5. Verify the root causes with data (Pareto, Scatter)



# Six Sigma

## Step 2 - Analyze the Problem



# Six Sigma

## Step 3 - Prevent the Problem

### Purpose

Identify the countermeasures required to reduce or eliminate the root causes

*Take away the cause, and the effect ceases.*  
- Cervantes

Like ecological weed prevention, a countermeasure prevents problems from ever taking root in a process. A good countermeasure not only eliminates the root cause but also prevents other weeds from growing.

### Defining Countermeasures

COUNTERMEASURE				

1. Transfer the problem statement from step 2 and the root causes from step 3.
2. For each root cause, identify one to three broad countermeasures (what to do).
3. Rank the effectiveness of each countermeasure (Low, Medium, or High)
4. Identify the specific actions (how to do it) for implementing each countermeasure
5. Rank the feasibility (time, cost) of each specific action (Low, Medium, or High).
6. Decide which specific actions to implement.

Problem Statement \_\_\_\_\_

Root Cause	Countermeasure	Effective?	Specific Actions	Feasible?

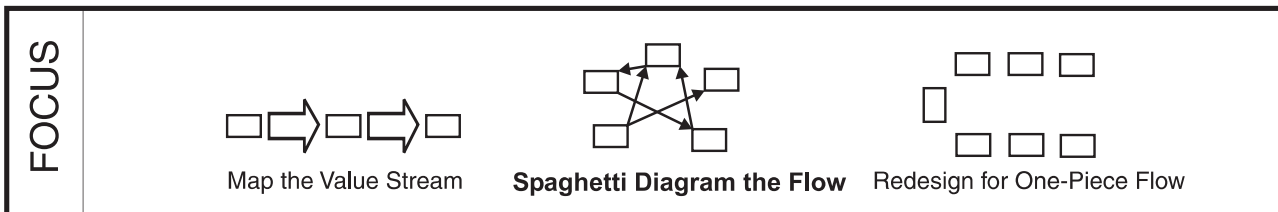
Low  
Medium  
High

Low  
Medium  
High

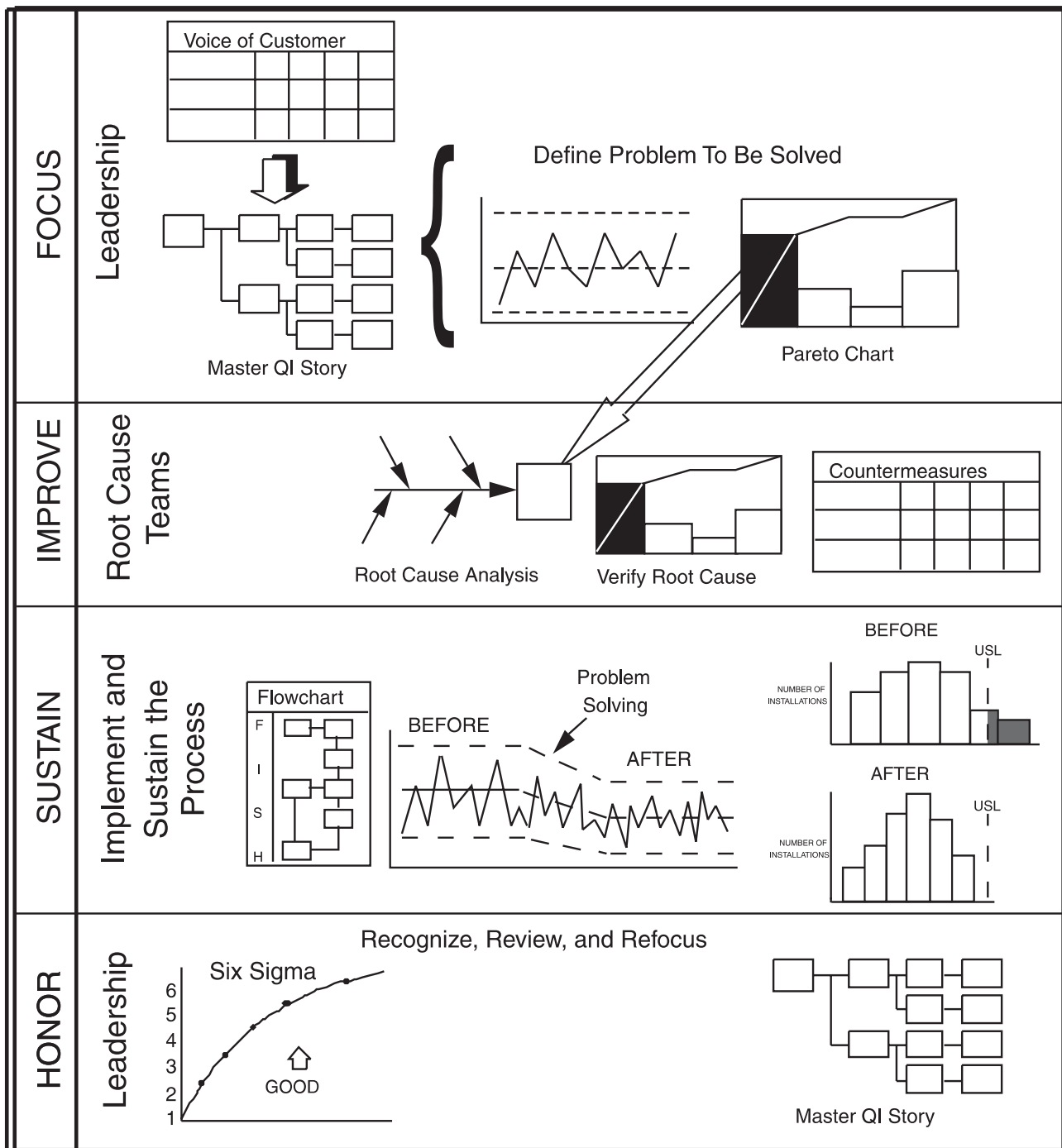
# Your "Million Dollar Money Belt"

## Improvement Strategy

Simplify and Streamline



### Optimize



# Lean Six Sigma

## Cut costs up to 40% and add them to your bottom line!

It happened again. I was talking to someone that went on and on about how they'd tried Lean Six Sigma. They trained lots of black belts and green belts. Several years and millions of dollars later they still have next to nothing to show for it. Don't let this happen to you!

## Become a Lean Six Sigma "Money Belt" at [www.lssmb.com](http://www.lssmb.com)

Instead of black or green belt, you want to be a "money belt!" I want you to learn the actual methods, strategies, and techniques I've used to generate millions of dollars in savings for my clients. I'll teach you how to systematically save big bucks and add it to your profits.

If you are serious about starting or remaking your process improvement program into one that achieves breakthrough reductions in cycle time, defects, and costs while maximizing bottom-line benefits and minimizing your investment, this is the strategy for you. Quite frankly, it doesn't matter what industry you're in, or what product or service you have. If you're a \$10 million company or larger and have problems with speed, quality and value, you can start using these Lean Six Sigma tools right now to routinely add big profits to your bottom line.

## The Bad News (The Fix-It Factory)



**In your business there are two factories:** one that delivers products or services, and the "Fix It" factory that repairs all of the mistakes created by the first factory. If you're a "3-sigma" business (3% error or 30,000 defects/million), that's 3% in orders, 3% in fulfillment, 3% in billing...your real error rate is 6%, 12%, 18% or worse. And each error costs more to fix than it did to create it. Between \$25-\$40 of every \$100 you spend is wasted on fixing defective products or services. That's a big bite out of your profits. OUCH!

## What Most Consultants Don't Want You To Know!

**If you're a 3-sigma company,** then you can solve 90% of your current problems using three tools: control chart, pareto chart, and fishbone diagram. Focused application of these tools can take you from 3 to 5 sigma (233 defects/millions) in 18-24 months. Then you'll be ready for some Black belt training, but until then you're just wasting your money fattening resumes.

## A Model That Works

**After decades of working with improvement teams, I've found a consistent, foolproof method to achieve breakthrough improvements:**

1. **Focus** the improvement effort to minimize the cost and maximize the gain.
2. **Improve** dramatically your speed, quality, and cost.
3. **Sustain** the improvement to maximize your productivity and profitability.
4. **Honor** your progress by recognizing your team's efforts.



# Working with Jay Arthur



This workbook is an outline of the improvement areas that I explore with my results-oriented clients. My goal is to help you understand how to make dramatic improvements in your business performance by simplifying the approach and narrowing the focus to ensure success.

Haven't you waited long enough to start getting the results you want? You can take advantage of these services in the following formats:

## The Lean Six Sigma Simplified System (Item #490)

Have you ever noticed that once you learn something, you use 20% of the tools about 80% of the time? That's what I've done with the Lean Six Sigma Simplified System—packaged the vital few tools that you need to make breakthrough improvements. No matter where you are now, these tools can take you to five Sigma (233 defects/million) in 18-24 months. This package includes: *Lean Six Sigma* workbook (140+ pgs), *QI Macros for Excel* (automates all of your graphs), *QI Macros Training CD-ROM* and the *Lean Six Sigma "Training Audio*.

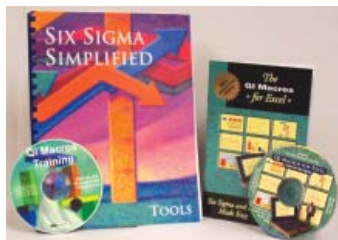
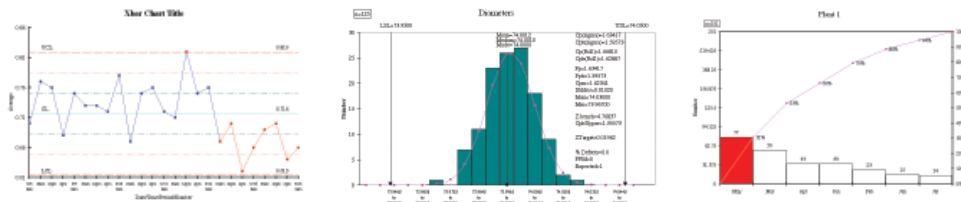
Investment \$997 plus S&H

To Order Call 888-468-1537

## QI Macros Lean Six Sigma SPC Software (Item #230)



### Draw Control Charts, Histograms, Paretos and Fishbones in Excel 2000-2012!



## QI Macros Starter Kit (Item #275)

For those who would like a little guidance, we created a starter package:

- QI Macros Lean Six Sigma SPC Software for Excel
- QI Macros Computer-based Training CD-ROM
- Six Sigma Tools Example Book

Call Today! 888-468-1537 or (303) 756-9144

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