



business optimization

WHITE PAPER

# Using Lean Six Sigma to Improve your TL 9000 Quality Management System Return on Investment

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## Getting Enough Out of Your Quality Management System?

Perhaps you implemented a quality management system within the last several years, and you can't prove the hard dollar return on investment for having spent the money to implement it. Many companies recently surveyed by QuEST Forum, the global telecommunications quality organization, reported that they have received real benefits such as new business opportunities resulting from TL 9000, the telecommunications industry quality standard; but they have not seen hard dollar return on investment or ROI. In real terms, they have not seen the cost reduction that they believed implementing a quality system would bring about. This is not surprising. While quality management systems excel in framing a culture of quality, continual improvement, and customer satisfaction, they do not help management identify specific cost reduction opportunities based on reducing costly process variation or wasted work.

## Characteristics of Quality Management Systems

A quality management system based on ISO 9001 including TL 9000, TS 16949, and AS 9100 is a general approach to improving over a period of time by introducing cultural change and discipline to an organization. Processes and their interactions are defined and documented to draw people out of their "silos" and ensure that they know what is expected of them. Management is required to oversee the workings of the quality system and drive general improvements. Issues are resolved and their resolutions recorded through a systematic corrective and preventive action system so that lessons are learned. Trended performance measurements help management understand the level of quality and customer satisfaction that the organization is delivering.

## Using Lean Six Sigma to Realize ROI

*While quality management systems give companies a leg up so to speak by facilitating a new culture of improvement, they fall short in providing comprehensive methods for attacking specific problems.* This is where the addition of cost reduction tools can really augment a quality management system. For instance, a quality system can require corrective action, but how do you decide what action to take? This dilemma can be resolved by adding some specific tools, methodologies, or approaches, to your tool kit to help define problems and address them effectively. Furthermore, you can apply these methods to help reduce cost or improve your return on quality investment. The effort will pay dividends. An estimated 5 to 15% of a company's operating cost result from some kind of rework or wasted work.

We recommend a powerful tool called *Lean Six Sigma*, sometimes referred to as "Six Sigma light." Lean Six Sigma *combines two tools, Lean and Six Sigma* into a single approach designed to help managers identify specific areas of improvement and cost reduction within the quality system.

The tools are different, yet complimentary. Lean focuses on *identifying and eliminating wasted work* while Six Sigma is an effective analytical and statistical tool for eliminating or reducing variation

throughout the end-to-end business process workflow. Table “A” shows specific examples of the Lean and Six Sigma approaches:

Six Sigma	Lean
Eliminate Variation	Eliminate Waste
<ul style="list-style-type: none"> <li>- Data Collection</li> <li>- Process Drift</li> <li>- Information Access</li> <li>- Defective Parts</li> <li>- Training</li> <li>- Tooling</li> </ul>	<ul style="list-style-type: none"> <li>- Over production</li> <li>- Inventory</li> <li>- Defective Parts</li> <li>- Motion</li> <li>- Transportation</li> <li>- Waiting.</li> <li>- Manual Touches</li> </ul>
Decrease Variance	Increase Efficiency
Start at critical quality choke points as defined by customer requirements. <ul style="list-style-type: none"> <li>- Customer Define</li> <li>- Performance Metrics</li> <li>- Cross-Functional Teamwork</li> </ul>	Start where the product or service is created for the customer and then move throughout the company. <ul style="list-style-type: none"> <li>- Kaizen</li> <li>- Action Workout</li> <li>- Cross-Functional Teamwork</li> </ul>

Table A - Combining Lean and Six Sigma

Furthermore, Lean Six Sigma is a project based business improvement approach, and can be used within a quality management system to identify *specific opportunities* for reducing excessive costs or improving quality. This approach seeks to find and eliminate causes of mistakes or defects in business and product development processes by focusing on process inputs, activities, and outputs.

Lean Six Sigma focuses on the customer, data, process inputs, process variation, reasons for variation, and ways to increase consistency. Removing the variation allows the creation of repeatable, high performing processes. Process variation causes confusion and inconsistent delivery; and by revising processes where the outputs are the same, services can be scalable and reliable while creating an environment of improvement. Often managers will say they cannot eliminate process variation because all customers have unique product or service requirements. However, eliminating process variation does not eliminate the ability to customize products or methods of delivery for different customers; it simply eliminates all *unplanned* process variation.

Here is an example of unplanned variation. For argument’s sake, say most of your customers require service delivery in ten days, but several important customers require service delivery in three days. Delivering in three days forces you to jump through hoops spending money on overtime and express shipping. These are unplanned or unwanted process variations. A lean six sigma project could help analyze the normal ten day process to see why it takes so long and what it would take to achieve three days delivery by eliminating wasted steps instead of spending money expediting the service.

Improvement projects focused on specific issues with measureable improvement goals is one of the distinct advantages to a formal improvement approach like Lean Six Sigma. Without this requirement many improvement projects collapse because management allows “scope creep” or does not establish

the data to capture the ROI at the project's onset. The projects end up extending into multiple issues and in the end no one can quantify the improvement goal in order to compare it to the result.

The following is an example of a Lean Six Sigma project. The management team of "Company A" has a quality management system and conducts quarterly management reviews sharing high level data trends. For the last quarter, data shows that the cost of warranty maintenance has been steadily rising. Knowing that Lean Six Sigma is an approach used to determine what is causing this phenomenon, management selects a team and tasks team members to examine the rising warranty costs and bring the costs back into line.

The team conducts an analysis revealing a large number of return service trips associated with each warranty replacement. Before attempting to reduce return trips, the team determines how much money is being spent on warranty trips by estimating the total cost of each trip (hourly wages, fuel, hours unavailable for billing elsewhere, etc.). The team establishes the cost of return service trips and compares the total cost of return trips to the total cost of service trips. Then the team analyzes the reasons for return trips and determines specific solutions. Knowing how much each trip costs, they estimate that they will have to reduce the number of return trips by 10% per month to meet management's target. The team brainstorms solutions, implements the solutions, and measures the results to ensure that actual cost reduction takes place.

Simply put Lean Six Sigma is a formal method that companies use to "Define, Measure, Analyze, Improve, and Control" processes for specific projects. Lean Six Sigma is the integration of the best principles of Six Sigma and Lean for process improvement.

The methodology itself works like this:

1. Define a project from opportunities based on costs that exceed management expectations (management's knowledge that warranty costs are on the rise)
2. Measure the current results to understand where you are today (cost times return trips)
3. Analyze the reasons for the results you are experiencing (determine reasons)
4. Improve with a change in process, method, etc.(suggest and implement proposed solutions)
5. Control the new process to ensure your improvements aren't lost (monitor trended data)

#### Lean Six Sigma Supports Quality Management Systems

Most organizations that implement quality management systems like TL 9000 want to see the improvements; however, they do not know where to start. By utilizing Lean Six Sigma project management techniques, a firm can implement improvements based on thorough analysis of data that demonstrates real ROI (e.g. reduced cost of return trips) and management can share the ROI with the organization.

Lean Six Sigma tools reveal improvements of substantial value where simply performing a casual root cause analysis alone may deliver only minor improvements. As a part of ongoing management and control, management monitors data trends and, of course, identifies corrective actions. Lean Six Sigma can provide you the tools to formally drive improvements from the data that ISO 9001, TL 9000, AS 9100 or TS 16949 has provided.

#### Tips for Implementing Lean Six Sigma

Because Lean Six Sigma is a specific, formal methodology some training is usually required for implementation. Companies normally begin by training a fairly broad population of employees in the basic concepts and then train specific team members on the various analytical tools. Then firms often use consultants to facilitate teams responsible for analyzing and implementing improvement actions. They review or analyze their operation looking for specific cost reduction opportunities. They discuss and often establish preliminary goals for the cost reduction and then commission a team to attack the problem. Numerous projects can be in place at the same time but should be prioritized base on their value to the company; therefore realizing benefits throughout the company.

**BIZPHYX** has a curriculum suite including *LSS101, Using Lean Six Sigma to Find the ROI in Your TL 9000 Quality Management System*, an overview to introduce you further to Lean and Six Sigma concepts and *LSS102, Using Lean Six Sigma to Enhance TL 9000 Results* an implementation course that instructs you in how to actually develop and execute winning LSS projects and maximize the ROI of your quality management system. **BIZPHYX** also offers facilitation, consulting and project management services for LSS projects. For more information go to our web site at [www.bizphyx.com](http://www.bizphyx.com) , email us at [info@bizphyx.com](mailto:info@bizphyx.com), or give us a call at (972)429-5560.

*About the Author Mr. Clancy graduated with Bachelor of Arts Degree from Kansas University. He began his career in 1972 with Communications Corporation of America, a leading telecommunications distributor. Mr. Clancy later joined DSC Communications, a leading manufacturer of Central Office systems as Senior Director Customer Information Services, where his organization achieved DSC's Chairman's Quality Award. Mr. Clancy managed a large part of DSC's implementation of ISO 9001 and upgrade to TL 9000. After DSC's acquisition by Alcatel, Mr. Clancy became the Vice President of Installation and Engineering and a key member of Alcatel's Quality Leadership Council. In 2001 Mr. Clancy helped begin **BIZPHYX** Incorporated to provide implementation, support, and training services relating to TL 9000. Mr. Clancy's expertise has enabled clients to register to TL 9000 while reducing operating costs and improving customer satisfaction. **BIZPHYX** is a member of the QuEST Forum the TL 9000 governing body and a QuEST Forum selected trainer. Mr. Clancy is a QuEST Forum Master Trainer and serves on the Forum's Global and IGQ work groups providing critical input to the TL 9000 standard and measurements.*