

## Using Cost of Quality to Demonstrate the Economic Value of Improvement, Organizational Excellence and Quality

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Using the principles of quality costs will show the specific economic benefits of a six sigma, ISO, Baldrige based, or other process improvement program.

### Why would an organization apply this approach?

Cost of quality measures the costs connected with either attaining the desired level of quality in a service or product, or missing the desired level of quality. These are the costs of preventing quality issues, appraising quality level, controlling quality level, or failing to make the desired quality level. Quality of product, quality of service, and quality of process are all included.

Setting up a formal measure of these costs allows many benefits, largely unobtainable with other approaches.

1. To avoid using trial and error methods and quality safety nets while integrating improvement approaches into functional areas, cost of quality is a significant part of managing. Only cost of quality provides a means to reduce inspection while retaining control of risks.
2. Some forms of improvement will shift costs around. When quality costs are applied correctly, these cost reductions are directly added to profits, and trade-offs are avoided.
3. Looking at the range of business measures from the top to the bottom of an organization, top managers use money in the measures, and lower level areas use pieces or transactions to measure work. Cost of quality creates an improvement measure from senior management's perspective.
4. The salient points of the economic case for improvement are:
  - Businesses are highly competitive
  - Improvement is a strategic tool
  - Quality is the 'right thing to do`' besides being a market imperative
  - To apply improvement methods in varying functional areas, there needs to be a translation of process improvement measures into the common language of business: money

### Key definitions of terms

Over the last several decades, quality costs have been divided into several categories. These are: 1) prevention, 2) appraisal, and 3) failure costs.

*Prevention costs:* costs of all activities specifically designed to prevent poor quality in products or services. All improvement approaches (six sigma, ISO, Baldrige, for example) will invest in some prevention activity.

*Appraisal costs:* costs associated with measuring, evaluating or auditing products or services to assure conformance to quality standards and performance requirements. Most improvement programs enable reduction of these classic “quality” area expenses as work processes are better controlled and prevention investments bear fruit.

*Failure costs:* costs resulting from products or services not conforming to requirements or customer/user needs. Failure costs are divided into internal and external failure cost categories.

*Internal failure costs:* failure costs occurring prior to delivery or shipment of the product, or the furnishing of a service, to the customer. In the service environment, effort that does not support service delivery may be considered internal failure.

*External failure costs:* failure costs occurring after delivery or shipment of the product, and during or after furnishing of a service, to the customer. Service businesses often count second and third customer contacts as external failures.

### **What are the core values of cost of quality?**

#### Flexibility

Cost of quality can be applied at any organization. Service organizations can apply cost of quality; there are costs of poor processes in service industries as well as costs of measuring quality levels (appraisal) and investments to prevent poor outcomes. Most importantly, the elements of cost of quality are meant to be applied in the context of each organization. Because of this, these techniques can be applied to many types of organizations, and all improvement approaches.

#### Cost reduction via prevention

You can manage your improvement programs with a balance of prevention activity cost, measurement activity cost, and connected costs. Increased and refocused prevention activities are used to first attack failure costs, then reduce appraisal costs.

#### Reducing the overall costs is the goal

Improvement programs will show bottom-line savings while avoiding the pitfalls that accompany simplistic cost cutting. These pitfalls may include decreases of product or service quality, increased customer dissatisfaction, added rework costs, or simple shifts of costs from one area to another.

#### The later a problem is found, the more it costs to fix

The central theme behind cost of quality is that the largest costs occur after product has shipped or a service has been performed; that is, in the category of external failure costs. By showing costs in the order of flow, managers will focus improvement efforts on issues at the earliest possible point in the flow.

#### Showing the quality payoff

A cost of quality system shows the payoff of improvement activities. Has the organization reached the point where added improvement activity consumes more resources than it returns in benefits? An ongoing cost of quality program will answer that by showing the pace of improvement.

#### A global look

Cost of quality allows a monetary measure of overall organizational progress. No longer will departments waste time arguing that their improvement trumps the contribution of another department's. All improvement will be measured in terms of their contribution to the bottom line.

#### **The Whole Organization**

With a comprehensive cost of quality program, the costs from each organizational area can be totaled. By comparing the pace of change of each area to its own track record, senior managers can allocate resources according to measured need and strategic plans.

Improvement methodologies such as lean, six sigma, ISO, and Baldrige-type programs all reference the need to measure an organization's performance. Cost of quality provides the way to measure improvement so that measure can be integrated into an organization's strategic plan.

The core values of the Baldrige approach drive a holistic approach to improvement. 'Management by Fact,' 'Focus on Results and Creating Value,' and 'Systems Perspective' in particular support the use of cost of quality.

Linkage is the key. From improvement approaches to dollars and cents, from early flow to late flow of product, from supply chain beginnings to final customer and the end of the waste stream; linkage of key costs allows strategic improvement.

#### **The Final Analysis**

The name of the game is dollars and cents. Cost of quality will demonstrate the value of improvement approaches. Cost of quality makes an ongoing "economic case" for the value of improvement, excellence, and quality, no matter what improvement approach is used.