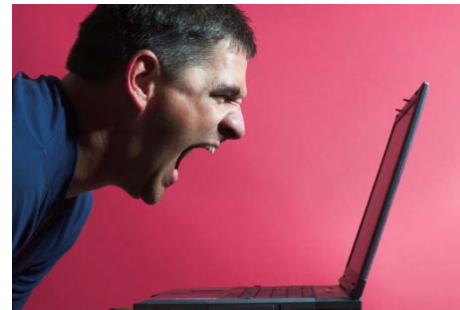


The Cost of Poor Quality (COPQ) Speaking the Language of Money



Background and Satisfied Clients

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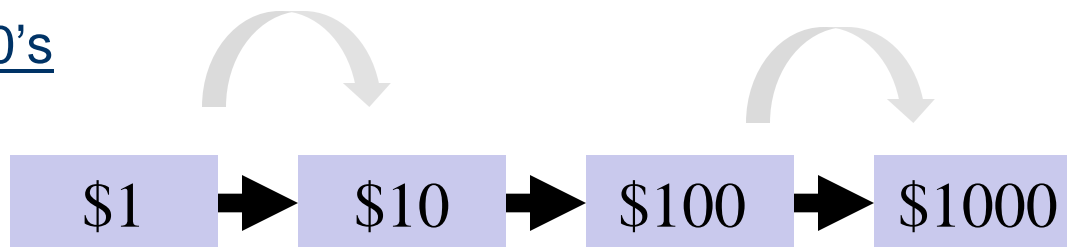
What is the Cost of Poor Quality?

Definition:

“Costs which are incurred when requirements are not clear, not met, or when organizations devote resources to determining if requirements have or have not been met.”

“Typical waste is 25-35% of operating budget “

Rule of 10's



Why Cost of Poor Quality?

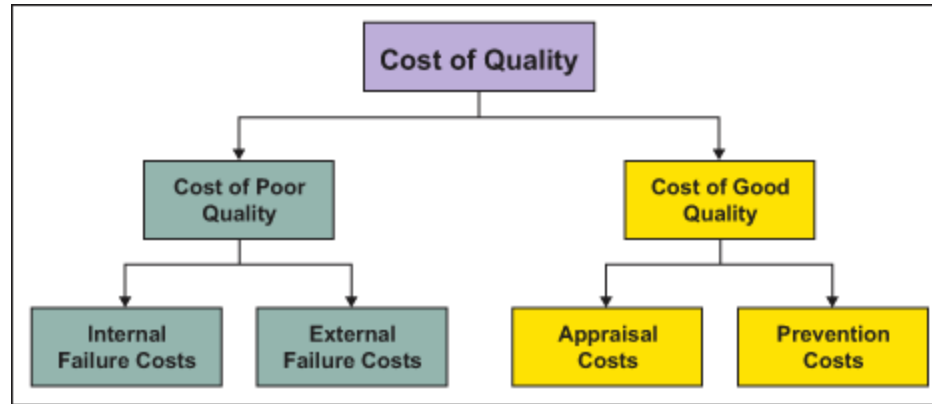
- + Speaks in the language of management \$\$\$
- + Shows how profit is affected by poor quality
- + Can prioritize quality improvement actions
- + Serves as an impetus for action



Improvement Requires Understanding – The Quality Profile

1. Products and services delivered to customers, both internal and external, typically do not meet agreed upon requirements.
2. Problems aren't resolved; many of the same problems are fixed over and over again.
3. Employees want to improve, but aren't sure what to do or how to do it.
4. Employees aren't sure if they have permission to challenge the status quo and change things.
5. The company has a service entity focused on warranty, rework and/or repair.
6. Things seem to take longer to get done than they should.
7. The stated performance standard is “do the right things right”; the operational performance standard is “close enough is good enough”.
8. Quality department is blamed for quality problems.
9. Focus is on cost and schedule, not quality
10. Quality is not seen as a management tool.

Cost of Quality



Total Costs
 Σ of all

Internal Failure Costs: The costs resulting from products or services not conforming to requirements or customer/user needs. Examples: Scrap, rework, and re-inspection.

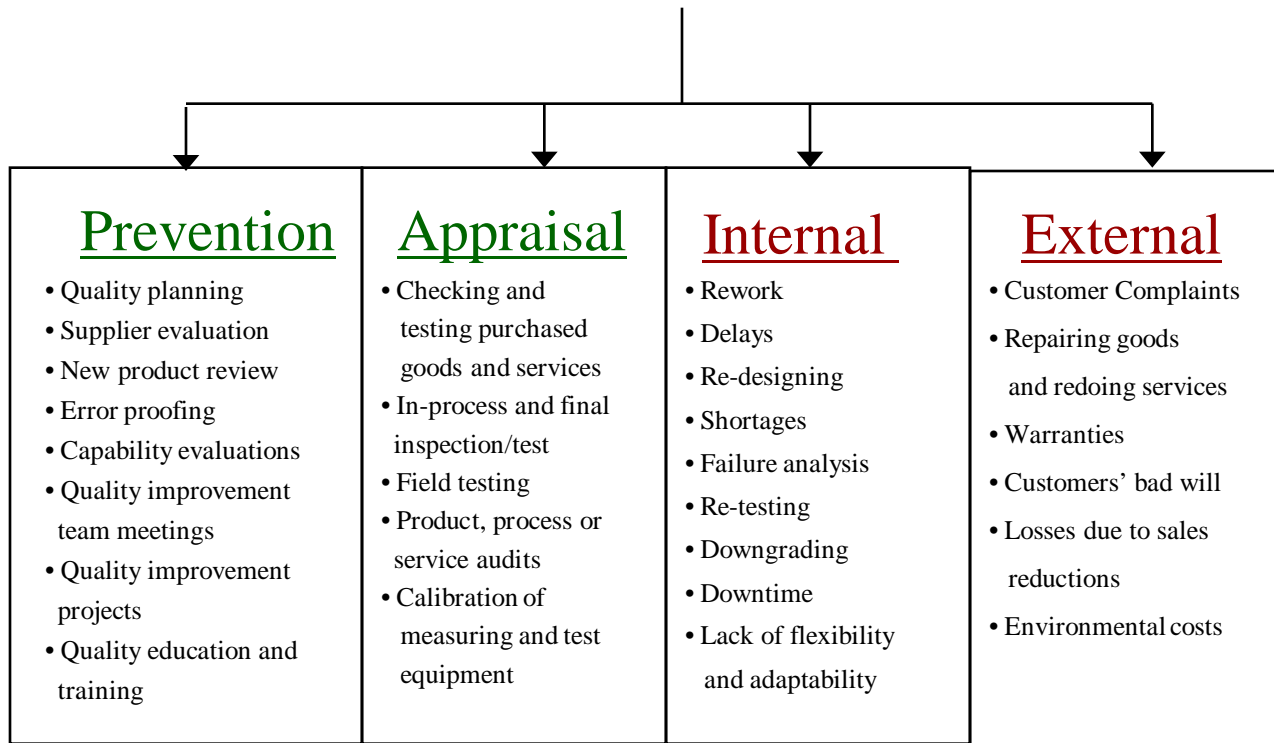
External Failure Costs: Failure costs occurring after delivery or shipment of the product - and during or after furnishing of a service to the customer. Examples: Returns, customer complaints and product recalls.

Appraisal Costs: The costs associated with measuring, evaluating or auditing products or services to assure conformance to quality standards and performance requirements. Examples: In-process and final inspection and product, process or service audits.

Prevention Costs: The costs of all activities specifically designed to prevent poor quality in products or services. Examples: New product review, process capability evaluations.

Cost of Poor Quality

Cost of Poor Quality "COPOQ"



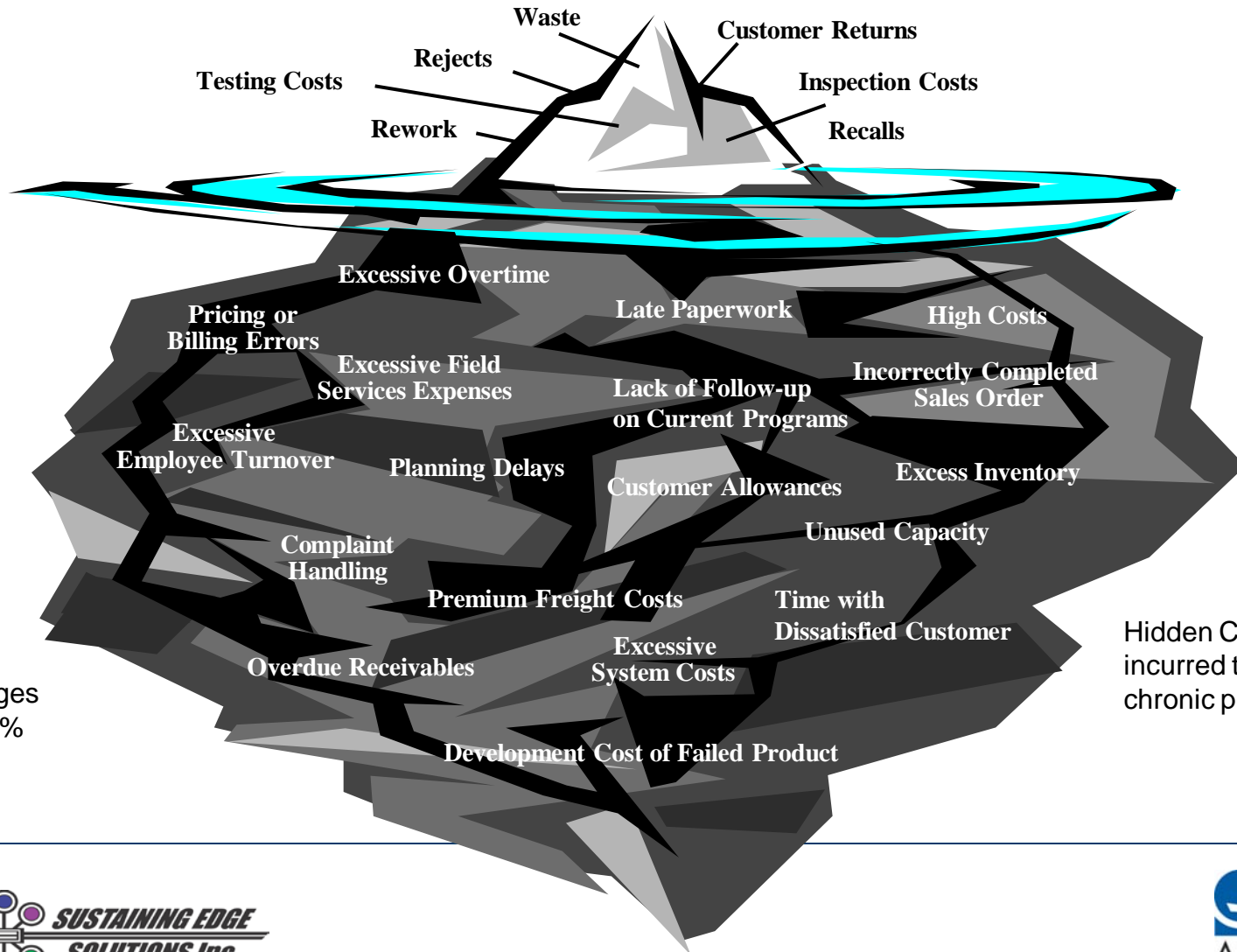
Cost of
Good Quality



Cost of
Poor Quality



As an organization gains a broader definition of poor quality, the hidden portion of the iceberg becomes apparent.



COPQ ranges from 15-25% of Sales

Hidden COPQ: The costs incurred to deal with these chronic problems

Seven Types of Waste - TIMWOOD

Manufacturing types of waste

- T- Reduce transportation of material
- I - Reduce inventory of WIP
- M - Reduce motion of product
- W - Reduce waiting of worker & WIP
- O - Reduce overproduction
- O - Reduce over processing
- D - Reduce defects

Service types of waste

- T- Reduce information transportation
- I - Reduce inventory of customers waiting
- M - Reduce motion of people and customer
- W - Reduce waiting of worker & WIP
- O - Not typically applicable
- O - Reduce losing track of customer needs
- D - Reduce defects



The Cost of Internal Failures

- Cost of defects found
- Unclear and/or undocumented requirements
- Improper design and implementation
- Incorrect test documentation
- Incoming inspection defects
- In-process testing defects
- Final acceptance testing defects
- Product rework

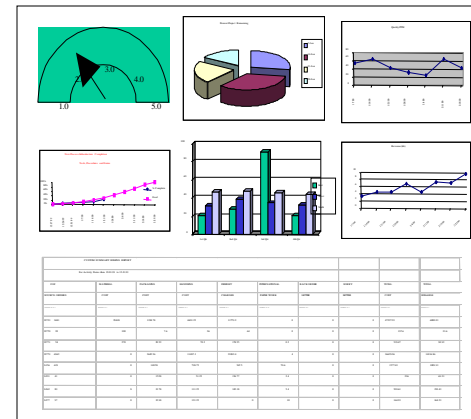
Problem Statement

- What happened?
- When did it happen?
- Where did it happen?
- Who did it happen to?
- How many/much and how often?

COPQ Calculation Methods

Five methods for calculating the Cost of Poor Quality:

1. Whole Account
2. Whole Person
3. Labor Claiming
4. Unit Pricing
5. Deviation From Ideal



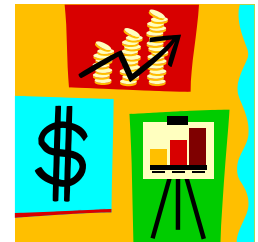
Whole Account Method

Most straightforward and easiest calculation of COPQ

- Organizations routinely budget for nonconformance – scrap, rework, repairs, unplanned overtime.
- Department expense budget met or below-less for next year. Over expense budget-bump up.
- Review the ledger with “Quality Eyes’ – Where are the monies budgeted to cover the costs of doing the right things wrong, the wrong things right?
- Best to “think ideal”. Zero defects is the goal-no error is acceptable, including the costs associated with it.

Examples of Whole Account Elements

Warranty – Scrap – Downtime – Unplanned overtime



Whole Person Method

Similar to the Whole Accounts Approach

- Identifies full-time employees who spend all their time with activities classified as COPQ.
- Doing things over that did not meet the requirements the first time.
- Whole person calculation technique helps realize how many people are involved in dealing with nonconformance.
- Example: Customer Complaint Call Center
- Change in mindset: improve work processes, delight customers and provide new offerings.

Examples of Whole Person Elements

- End of line inspection
- Receiving Inspection
- Customer complaint handling
- Rework departments



Labor Claiming Method

- Labor claiming is a method for determining the costs incurred when a portion of a person's time is spent in a nonconformance or trying to resolve one.
- Whole Person calculates the costs from a smaller number of personnel (full time), Labor Claiming involves everyone (what portion of a person's day).
- Example: Average person spends 2 hours per week in, or working on resolving a nonconformance at a rate of \$35.00 per hour.
 - 100 department associates (2 x \$35 x 100 x 52) = \$364,000 spent annually on nonconformance.
- Your best friend: Chief Financial Officer, CFO

Examples of Labor Claiming Elements

- Problem solving time
- Time spent dealing with complaints
- Wait time

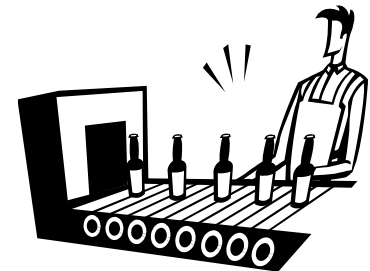


Unit Pricing Method

- Undesirable events occur in the workplace on a routine basis.
- Unit Pricing assigns a standard cost to an event and that cost is multiplied by the number of occurrences.
- Example: Service Technician
- Every department is familiar with events that cost them time and money.
- Every department / person can determine the financial impact of errors.

Examples of Unit Pricing Elements

- Machine breakdown
- Change orders
- Crisis handling
- Inventory shortages



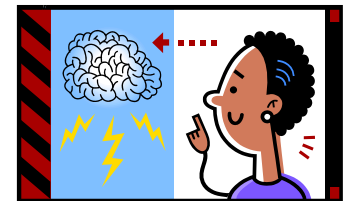
Deviation From the Ideal Method

Most challenging method and significant improvement results

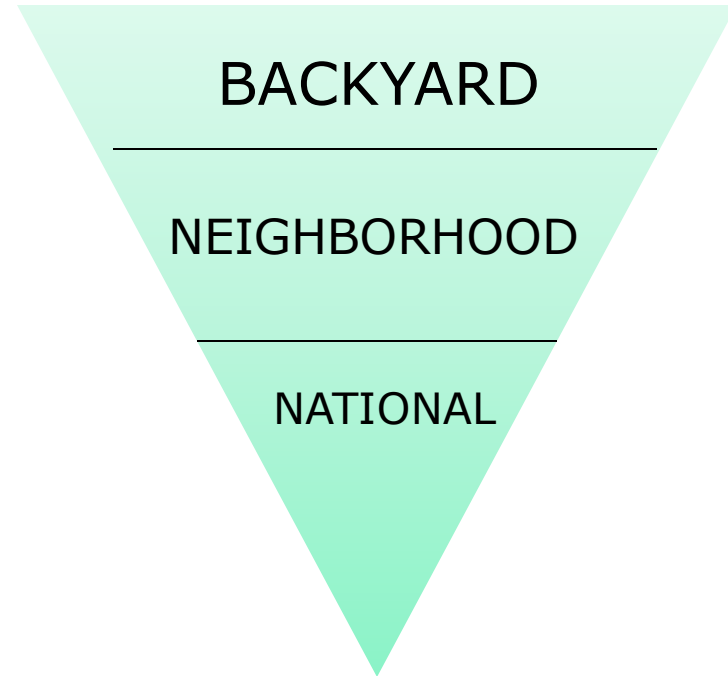
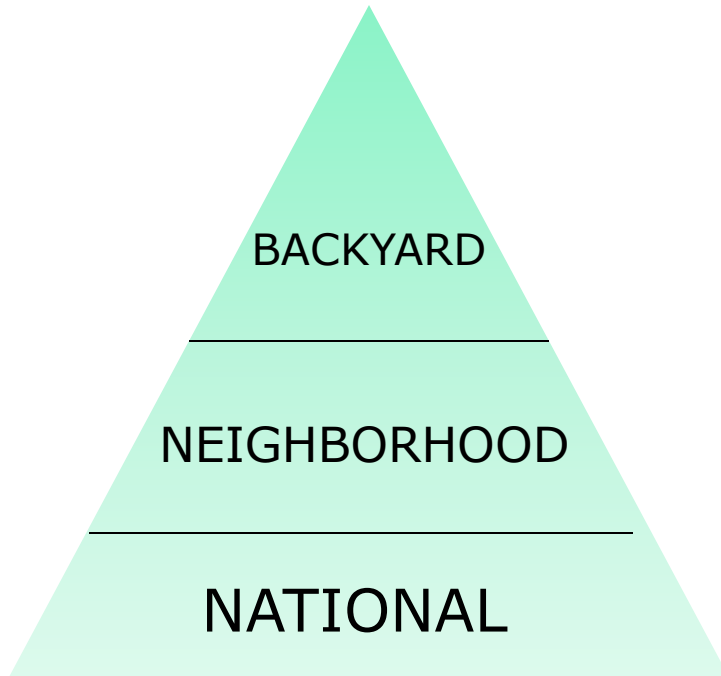
- The ***ideal state*** for how work processes should perform and compare that to the ***current reality***.
- Cost of Poor Quality can be easily identified comparing both.
- Work processes are not defined, they evolve. New requests made – processes modified – changes and fixes required to produce desired outcome.
- Refined fixes become routine and outcome is achieved, however in a greatly inefficient manner with excess costs.

Examples of Deviation from the Ideal Method

- Lost sales
- Production yield



Targeting Items For Action



Pyramid of Types of Problems

Prevention Expense Examples

- Quality Planning
- Training and Education
- Process Definition
- Customer Surveys
- Preproduction Reviews
- Technical Manuals
- Detailed Product Engineering
- Early Approval of Product
- Specifications
- Purchase Cost Targets
- Process Capability
- Studies
- Preventive Maintenance
- Supplier Qualification
- Job Descriptions
- Housekeeping
- Zero-Defect Program

Using The Data

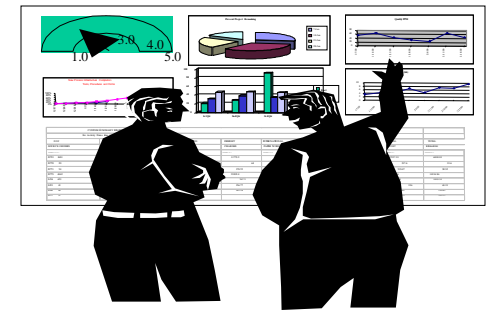
COPQ Data is only helpful when put to use -

- + **Get Attention:** Stating a problem results in an expenditure of \$25K a week, gets more attention than 20 times a week.
- + **Prioritize:** Determine which COPQ is significantly affecting the organization and/or the relationship to the customer.
- + **Justify:** Financial data determines the payback for time and effort.
- + **Measure:** Setting annual goals for reduction of Cost of Poor Quality will help continually drive improvement results.

Deployment Guidelines

May have to establish a data collection process to gather COPQ data.

1. Identify the major internal and external categories that need to be captured.
2. Establish a method to collect the data for each category (CFO / Team).
3. Establish cost opportunity for categories being tracked. (CFO and Accounting Dept.)
4. Establish reporting format that can easily calculate COPQ, preferably an automated system that is accessible to involved parties.



Quality Costs Advantages

- Reducing the cost of poor quality is one of the best ways to increase a company's profit.
- Provides manageable entity and a single overview of quality.
- Aligns quality and goals.
- Prioritizes problems and provides a means to measure change/improvement.
- Provides a means to correctly distribute controllable quality cost for maximum profits.
- Promotes the effective use of resources.
- Provides incentives for doing the job right every time.

THANK YOU!



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